STIC Search Report
EIC 1700

USPTO

STIC Database Tracking Number: 140131

TO:	From:
Robert Hodge **Location: REM 6D20** **Art Unit : 1746** **December 27, 2004** **Case Serial Number: 10/080067**	**Kathleen Fuller** **Location: EIC 1700** **REMSEN 4B28** **Phone: 571/272-2505** **Kathleen.Fuller@uspto.gov**

Search Notes

sira
Search and Information Resources Administration

Mellerson, Kendra

From: Unknown@Unknown.com
Sent: Monday, December 13, 2004 9:12 AM
To: STIC-EIC1700
Subject: Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 140131

LogNumber= _____

Searcher= _____

SearcherPhone= _____

SearcherBranch= _____

MyDate=Mon Dec 13 09:11:47 EST 2004

submitto=STIC-EIC1700@uspto.gov

Name=Robert Hodge

Empno=80542

Phone=571-272-2097

Artunit=1746

Office=6D20

Serialnum=10080067

PatClass=429/317

Earliest=2/22/01

Format3=email

Searchtopic=the claimed invention appears to be a solid polymer electrolyte that is formed using a specific formula as described in the claims, the different groups of the polymer include alkyl, alkoxy, hydroxyl, alcohol, alkenylene, aryl and aryloxy groups.

Comments=Applicants elected claims 1-14 over the phone

I am usually available Mon-Fri 8-5:30, with the first Friday of every bi-week off.

send=SEND

STIC Search Results Feedback Form

USPTO

EIC 1700

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art* ***found****, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art* ***not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

=> FILE REG
FILE 'REGISTRY' ENTERED AT 12:01:36 ON 27 DEC 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 26 DEC 2004 HIGHEST RN 802853-20-9
DICTIONARY FILE UPDATES: 26 DEC 2004 HIGHEST RN 802853-20-9

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

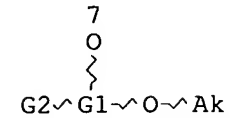
Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 12:01:43 ON 27 DEC 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

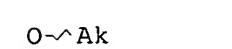
FILE COVERS 1907 - 27 Dec 2004 VOL 142 ISS 1
FILE LAST UPDATED: 24 Dec 2004 (20041224/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> => D QUE
L1 1 SEA FILE=HCAPLUS ABB=ON US2002155354/PN
L2 14 SEA FILE=REGISTRY ABB=ON (450358-41-5/BI OR 450358-42-6/BI OR
450358-43-7/BI OR 450358-44-8/BI OR 450358-45-9/BI OR 450358-46
-0/BI OR 14283-07-9/BI OR 143314-16-3/BI OR 174899-82-2/BI OR
21324-40-3/BI OR 324574-91-6/BI OR 344790-86-9/BI OR 7791-03-9/
BI OR 90076-65-6/BI)
L4 STR



25,577 polymers from this query per formula 1



VAR G1=M/SI/B
VAR G2=AK/5
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L6		SCR 2005
L7		SCR 1918 OR 1932 OR 2026
L9		SCR 2043
L11	25577	SEA FILE=REGISTRY SSS FUL L4 AND L6 AND L7 AND L9
L12	20657	SEA FILE=HCAPLUS ABB=ON L11
L13	79	SEA FILE=HCAPLUS ABB=ON L12 AND BATTER?(5A)ELECTROLYT?
L14	61	SEA FILE=HCAPLUS ABB=ON L13 AND (SOLID? OR NONAQ?)
L15	14	SEA FILE=HCAPLUS ABB=ON L14 AND (COMPOSITION? OR COMPNS)
L16	4	SEA FILE=REGISTRY ABB=ON L2 AND 1-3/M
L17	14684	SEA FILE=HCAPLUS ABB=ON L16
L18	32	SEA FILE=HCAPLUS ABB=ON L14 AND L17
L23	41	SEA FILE=HCAPLUS ABB=ON L14 AND (?SILOXAN? OR ?SILICAT? OR ?SILANE?)
L25	21	SEA FILE=HCAPLUS ABB=ON L14 AND (GROUP#(1A)(1 OR 2 OR I OR II) OR LI OR LITHIUM OR NA OR SODIUM OR POTASSIUM OR K OR RB OR RUBIDIUM OR CS OR CESIUM OR BE OR BERYLLIUM OR MG OR MAGNESIUM OR CA OR CALCIUM OR STRONTIUM OR SR OR BARIUM OR BA)(5A)SALT#
L26	43	SEA FILE=HCAPLUS ABB=ON L15 OR L18 OR L25
L27	54	SEA FILE=HCAPLUS ABB=ON L26 OR L23
L29	41	SEA FILE=HCAPLUS ABB=ON L27 AND ELECTROCHEM?/SC
L31	1	SEA FILE=HCAPLUS ABB=ON L17 AND L1
L38	42	SEA FILE=HCAPLUS ABB=ON L31 OR L29

=> D L38 BIB ABS IND HITSTR 1-42

L38 ANSWER 1 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:839070 HCAPLUS
DN 142:9079
TI Sol-gel non-hydrolytic synthesis of a nanocomposite electrolyte for application in lithium-ion devices
AU Souza, Flavio L.; Bueno, Paulo R.; Faria, Ronaldo C.; Longo, Elson; Leite,

Edson R.
CS PPGCEM - Department of Materials Science and Engineering, Federal University of Sao Carlos, Sao Carlos, 13565-905, Brazil
SO Materials Research Society Symposium Proceedings (2004), 822(Nanostructured Materials in Alternative Energy Devices), 15-23
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB A new nanocomposite **battery electrolyte** was synthesized using a simple non-hydrolytic sol-gel route without specific treatment of the reagents. The nanocomposite ion conductor was prepared with citric acid, tetra-Et **orthosilicate**, and ethylene glycol, forming polyester chains. A time-consuming drying step was not required in the preparation of the nanocomposite electrolyte of the polyelectrolyte class, because only Li+ is mobile in the polymer chain. The effects of the concentration of Li, SiO2 and SnO2 nanoparticles were investigated in terms of Li ionic conductivity Conductivity measurements as a function of the metal oxide nanocrystal content in the nanocomposite revealed a significant increase in conductivity at approx. 5 and 10 weight% of nanoparticles. The new nanocomposite conductor was fully amorphous at room temperature, with a vitreous transition temperature of .apprx.228 K (-45°). The material is **solid** and transparent, displaying an ionic conductivity of 10-4 to 10-5 (Ω.cm)-1 at room temperature, presenting excellent reproducibility of all these characteristics. Cyclic voltammetry measurements indicated that the hybrid electrolyte possessed outstanding electrochem. stability.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST sol gel nanocomposite **electrolyte** lithium secondary **battery**; hybrid org inorg composite **electrolyte** lithium **battery**
IT Hybrid organic-inorganic materials
(**battery electrolytes**; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)
IT **Battery electrolytes**
(nanocomposite; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)
IT Glass transition temperature
(of nanocomposite polymer electrolytes; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)
IT Ionic conductivity
(sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)
IT **189352-24-7**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**battery electrolytes**; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)
IT 17341-24-1, Lithium ion(1+), processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(ionic conductivity of; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)

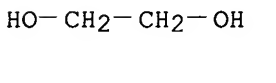
IT 7631-86-9, Silica, uses 18282-10-5, Tin dioxide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(nanocomposite **battery electrolytes**; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)

IT **189352-24-7**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**battery electrolytes**; sol-gel non-hydrolytic synthesis of hybrid organic-inorg. nanocomposite **electrolyte** in lithium **batteries**)

RN 189352-24-7 HCAPLUS
CN 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, polymer with 1,2-ethanediol and silicic acid (H4SiO4) tetraethyl ester (9CI) (CA INDEX NAME)

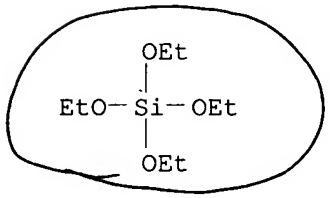
CM 1

CRN 107-21-1
CMF C2 H6 O2



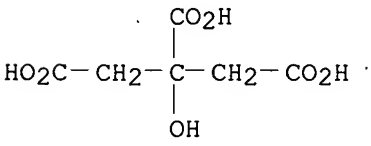
CM 2

CRN 78-10-4
CMF C8 H20 O4 Si



CM 3

CRN 77-92-9
CMF C6 H8 O7



RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 2 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:823006 HCAPLUS
DN 141:334861

TI Crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaqueous salt-type electrolytes** for **lithium** secondary **batteries**

IN Gambut, Lucile; George, Catherine; Vergelati, Caroll; Pujol, Jean Marc
PA Rhodia Chimie, Fr.

SO Fr. Demande, 24 pp.
CODEN: FRXXBL
DT Patent
LA French
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI FR 2853319	A1	20041008	FR 2003-4157	20030403
WO 2004090038	A1	20041021	WO 2004-FR709	20040323

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI FR 2003-4157 A 20030403
OS MARPAT 141:334861

AB Polymeric **electrolytes** for lithium secondary **batteries** consist of: (1) a **polyorganosiloxane** containing ≥2 C2-6-**alkenylsilane** or -**alkenylsiloxane**, and includes a polyoxyalkylene ether function, (2) a second **polyorganosiloxane** containing ≥2 (preferably 0.4-10) active Si-H bonds per mol., (3) a hydrosilylation catalyst (especially a Karstedt-type complex), and (4) ≥1 salt electrolyte. The polyoxyalkylene ether functions are derived from polyoxyethylene, polyoxypropylene, or their mono-Me ethers. Suitable salt electrolytes include LiClO4, LiBF4, LiAsF6, CF3SO3Li, LiN(CF3SO2)2, and LiN(C2F5SO2)2 in a non-aqueous electrolyte solvent, as well as other cations (e.g., a transition metal cations, selected from Mn, Fe, Co, Ni, Cu, Zn, Ca, and Ag).

IC ICM C08G077-20
ICS C08L083-07; C08K003-00; H01M010-22; H01B001-12
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38
ST crosslinked polymer **electrolyte** polyoxyalkylene **polysiloxane** lithium **battery; nonaq battery** polyoxyalkylene **polysiloxane electrolyte** ; hydrosilylation polyoxyalkylene **polysiloxane** crosslinking **battery electrolyte;** Karstedt hydrosilylation polyoxyalkylene **polysiloxane battery electrolyte**
IT **Polysiloxanes**, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)
IT Transition metal salts

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT Hydrosilylation
Hydrosilylation catalysts
(crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(di-Me, Me hydrogen **polysiloxane-, battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**
)

IT **Polysiloxanes**, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(di-Me, Me hydrogen, polyoxyalkylene-, **battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**
)

IT **Battery electrolytes**
(**nonaq.**; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT **Polysiloxanes**, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, **battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**polysiloxane-, battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT **771505-05-6P, Dimethoxysilanediol** graft polymer with **octamethyltetracyclosiloxane**, oxirane and **tetramethyltetravinylcyclotetrasiloxane**, methyl ether
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT 67-68-5, Dimethyl sulfoxide, uses 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses 110-71-4 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 7439-89-6D, Iron, salts 7439-96-5D, Manganese,

salts 7440-02-0D, Nickel, salts 7440-22-4D, Silver, salts 7440-48-4D, Cobalt, salts 7440-50-8D, Copper, salts 7440-66-6D, Zinc, salts 7440-70-2D, **Calcium, salts 7791-03-9**
, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate 24991-55-7, Polyethylene glycol dimethyl ether 33454-82-9, Lithium trifluoromethanesulfonate **90076-65-6** 132843-44-8
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

IT **118529-51-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and polymerization of; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**
)

IT **771505-05-6P, Dimethoxysilanediol** graft polymer with **octamethyltetracyclosiloxane**, oxirane and **tetramethyltetravinylcyclotetrasiloxane**, methyl ether
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

RN 771505-05-6 HCAPLUS
CN Silicic acid (H4SiO4), dimethyl ester, polymer with octamethylcyclotetrasiloxane, oxirane and 2,4,6,8-tetraethenyl-2,4,6,8-tetramethylcyclotetrasiloxane, methyl ether, graft (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O

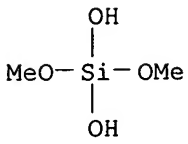
H_3C-OH

CM 2

CRN 771505-04-5
CMF (C12 H24 O4 Si4 . C8 H24 O4 Si4 . C2 H8 O4 Si . C2 H4 O)x
CCI PMS

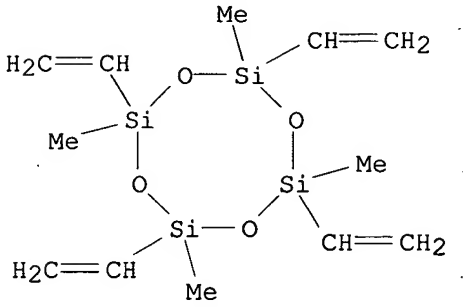
CM 3

CRN 3555-58-6
CMF C2 H8 O4 Si



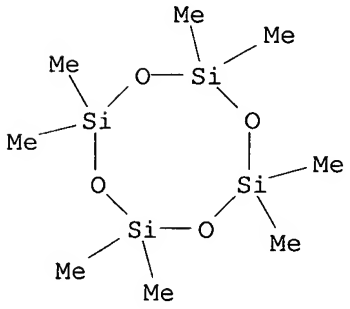
CM 4

CRN 2554-06-5
CMF C12 H24 O4 Si4



CM 5

CRN 556-67-2
CMF C8 H24 O4 Si4

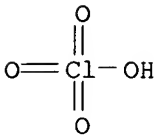


CM 6

CRN 75-21-8
CMF C2 H4 O

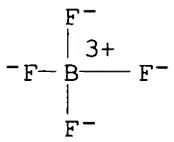
IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**battery electrolytes** containing; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**)

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



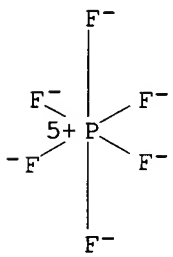
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



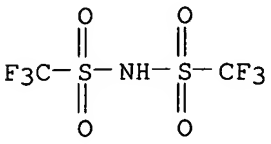
● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

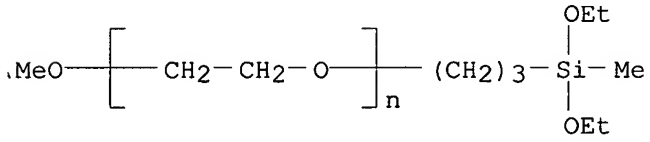


● Li^+

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



IT **118529-51-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and polymerization of; crosslinked polyoxyalkylene-**polysiloxanes** for use as **nonaq. salt**-type **electrolytes** for **lithium** secondary **batteries**
)
RN 118529-51-4 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-[3-(diethoxymethylsilyl)propyl]-ω-methoxy- (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 3 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:18146 HCAPLUS
DN 140:79779
TI Ionic conductors, and secondary **batteries** using them as **solid electrolytes**
IN Iio, Keiichi; Yoshihara, Toshiaki
PA Toppan Printing Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004006114	A2	20040108	JP 2002-159935	20020531
PRAI JP 2002-159935		20020531		

AB The ionic conductors contain (A) organic-inorg. composite polymers prepared by hydrolysis-polycondensation of starting materials containing organic compds. R1aM1(OR2)4-a [M1 = (non)metal; R1 = organic functional group; R2 = ChH2h+1; h = 1-5; a = 1-3] and (B) alkali metal salts M2X (M2 = alkali metal; X =

anion). The ionic conductors show good flexibility and are suitable for **solid electrolytes** having separator functions for secondary **batteries**.

IC ICM H01M010-40
ICS C08G077-04; C08K003-00; C08L083-04; H01B001-06

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

ST ionic conductor org inorg polymer battery; **solid electrolyte** org inorg polymer **battery**

IT Secondary batteries
(lithium; organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

IT **Battery electrolytes**
Conducting polymers
Polymer electrolytes
Secondary battery separators
(organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

IT Silsesquioxanes
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

IT Ionic conductors
(polymeric; organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

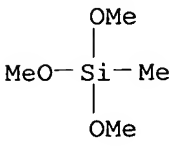
IT 7439-93-2DP, Lithium, **siloxane** complexes, bis(trifluoromethylsulfonyl)amide-containing **25498-03-7DP**, **Methyltrimethoxysilane** homopolymer, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing **56325-93-0DP**, 3-**Glycidoxypropyltrimethoxysilane** homopolymer, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing **90076-65-6DP**, LiTFSI, **siloxane** complexes 153315-80-1DP, **Methyltrimethoxysilane** homopolymer, sru, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing 162477-44-3DP, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing **292165-68-5DP**, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing 639819-48-0DP, methoxypolyethylene glycol derivs., lithium complexes, bis(trifluoromethylsulfonyl)amide-containing
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

IT **25498-03-7DP**, **Methyltrimethoxysilane** homopolymer, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing **56325-93-0DP**, 3-**Glycidoxypropyltrimethoxysilane** homopolymer, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing **90076-65-6DP**, LiTFSI, **siloxane** complexes **292165-68-5DP**, lithium complexes, bis(trifluoromethylsulfonyl)amide-containing
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic-inorg. composite polymer ionic conductors for secondary **battery electrolytes** and separators)

RN 25498-03-7 HCAPLUS
CN Silane, trimethoxymethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

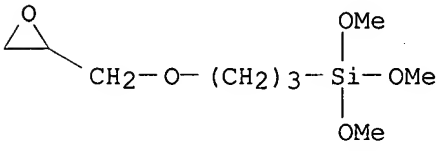
CRN 1185-55-3
CMF C4 H12 O3 Si



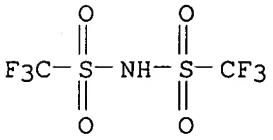
RN 56325-93-0 HCAPLUS
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2530-83-8
CMF C9 H20 O5 Si



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)

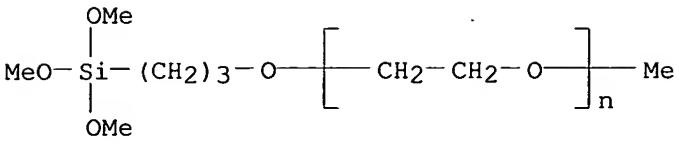


● Li

RN 292165-68-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-[3-(trimethoxysilyl)propoxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 65994-07-2
CMF (C2 H4 O)n C7 H18 O4 Si
CCI PMS



L38 ANSWER 4 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:794160 HCAPLUS
DN 139:310005
TI **Electrolyte composition** and electrochemical **battery**
IN Yasuda, Takayasu; Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003288954	A2	20031010	JP 2002-88588	20020327
PRAI JP 2002-88588		20020327		

AB New liquid crystal electrolyte is reported which can be used for production of electrochem. cell, **nonaq.** secondary cell, or optical-electrochem. cell. The ionic liquid crystal compound used as the electrolyte has the following general formula: [(A-L1-)m1-X-(-L2-R0)n1]Y, where A is mesogen group, L1 and L2 are double bonded or single bonded, R0 is a substitution group, m1 is 1 or 2, n1 is 0 or 1, X is an ionic group, and Y is a counter ion. The electrolyte has good elec. charge conductivity, good optical-elec. conversion rate, good durability, and good cycling property.
IC ICM H01M014-00
ICS H01B001-06; H01L031-04; H01M010-40
CC 52-1 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 73, 75, 76
ST **electrolyte compn** electrochem **battery** liq crystal
IT Secondary batteries
(lithium, **nonaq.**; synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)
IT Electrochemical cells
Electrodes
Electrooptical materials
Liquid crystals
Semiconductor materials
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)
IT Carbon black, uses
Glass, uses
RL: DEV (Device component use); USES (Uses)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)
IT 1314-23-4, Zirconia, uses 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-93-2, Lithium, uses 7440-06-4, Platinum, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12190-79-3, Lithium cobalt

oxide LiCoO2 13463-67-7, Titania, uses 25014-41-9, Polyacrylonitrile
612542-19-5 612542-20-8 612542-22-0 612542-23-1 **612542-24-2**
612542-26-4 612542-28-6 **612542-29-7** 612542-31-1
612542-33-3 **612543-07-4 612543-08-5** 612543-09-6
RL: DEV (Device component use); USES (Uses)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)

IT 612542-16-2P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)

IT 421-85-2 5197-62-6 7144-08-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)

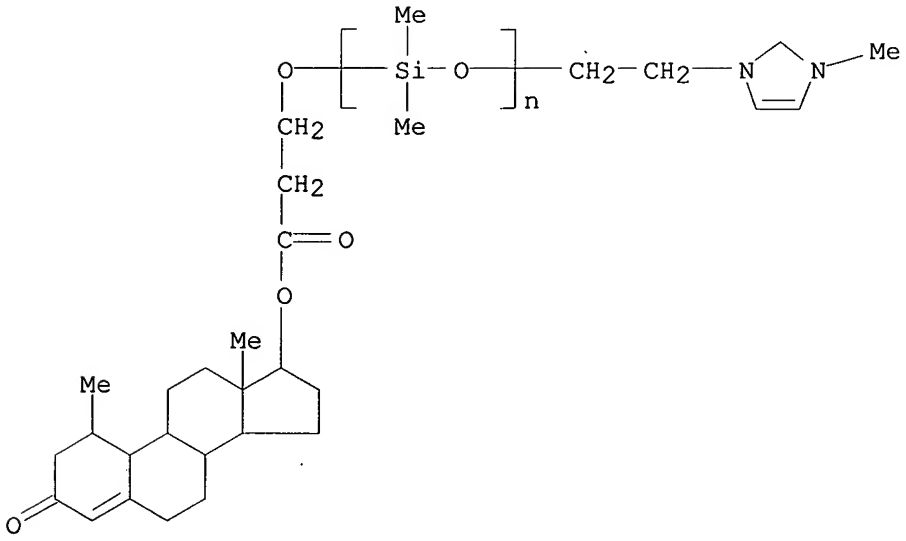
IT 473436-34-9P 612542-17-3P 612542-18-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)

IT **612542-24-2 612542-29-7 612543-07-4 612543-08-5**
RL: DEV (Device component use); USES (Uses)
(synthesis of ionic liquid crystal as **electrolyte** for electrochem. **battery**)

RN 612542-24-2 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α-[2-(3-methyl-1H-imidazolium-1-yl)ethyl]-ω-[3-[[(1α,17β)-1-methyl-3-oxoandrost-4-en-17-yl]oxy]-3-oxopropoxy]-, iodide (9CI) (CA INDEX NAME)

PAGE 1-A

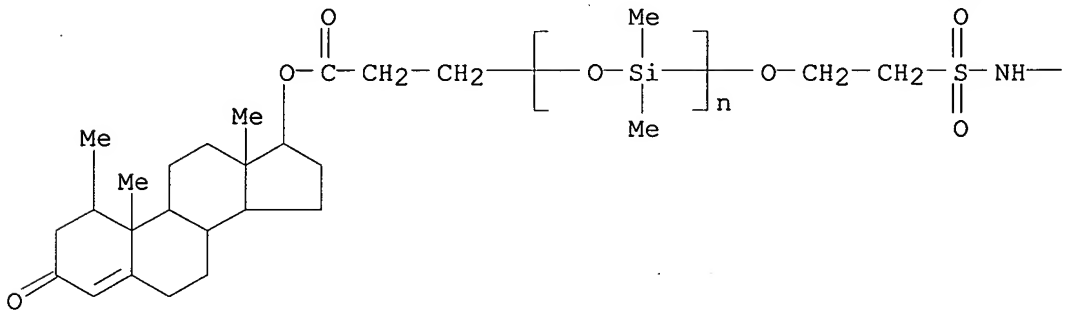


PAGE 2-A

● I^-

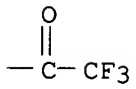
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RN 612542-29-7 HCAPLUS
CN Poly[oxy(dimethylsilylene)], α-[3-[[(1α,17β)-1-methyl-3-oxoandrost-4-en-17-yl]oxy]-3-oxopropyl]-ω-[2-[[(trifluoroacetyl)amino]sulfonyl]ethoxy]-, lithium salt (9CI) (CA INDEX NAME)

PAGE 1-A



● Li

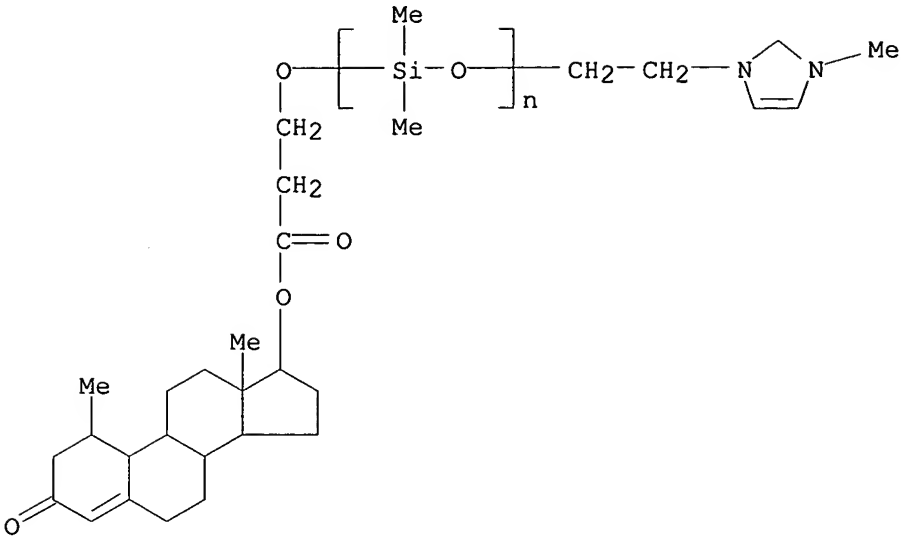
PAGE 1-B



RN 612543-07-4 HCAPLUS
CN Poly[oxy(dimethylsilylene)], α-[2-(3-methyl-1H-imidazolium-1-yl)ethyl]-ω-[3-[[(1α,17β)-1-methyl-3-oxoandrost-4-en-17-yl]oxy]-3-oxopropoxy]-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

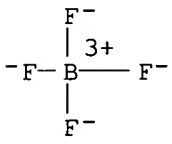
CRN 612543-06-3
CMF (C2 H6 O Si)n C28 H41 N2 O4
CCI PMS



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

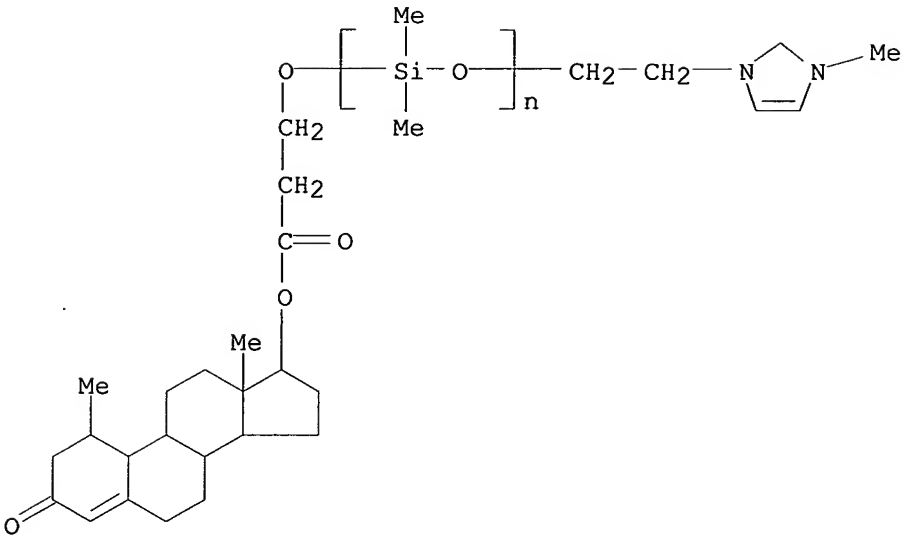
CRN 14874-70-5
CMF B F4
CCI CCS



RN 612543-08-5 HCAPLUS
CN 2,4-Pentanedione, 1,1,1,5,5,5-hexafluoro-3-(trifluoromethyl)-, ion(1-), salt with α-[2-(3-methyl-1H-imidazolium-1-yl)ethyl]-ω-[3-[[(1α,17β)-1-methyl-3-oxoandrost-4-en-17-yl]oxy]-3-oxopropoxy]poly[oxy(dimethylsilylene)] (1:1) (9CI) (CA INDEX NAME)

CM 1

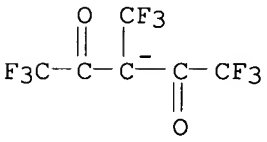
CRN 612543-06-3
CMF (C2 H6 O Si)n C28 H41 N2 O4
CCI PMS



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 69962-09-0
CMF C6 F9 O2

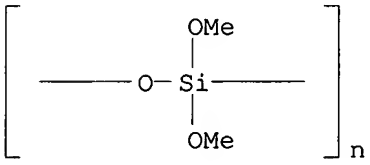


L38 ANSWER 5 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:715900 HCAPLUS
DN 139:248000
TI Electrolytic **composition** containing **siloxane** polymer and **nonaqueous** secondary battery
IN Wariishi, Koji; Ono, Michio
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 21 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

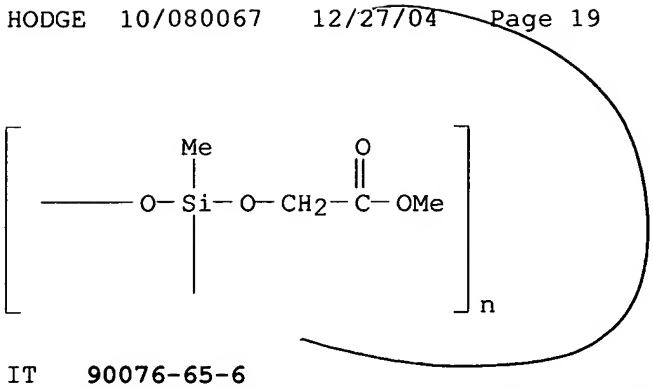
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003257480	A2	20030912	JP 2002-51865	20020227
	US 2003198870	A1	20031023	US 2003-374075	20030227
PRAI	JP 2002-51865	A	20020227		

AB The electrolytic **composition** comprises a Si polymer, an inorg. microparticle, and a metal ion **salt** from **Group I** or **Group II** element. The electrolytic **composition** exhibited excellent transport property when it is used for

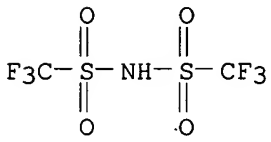
a Li secondary battery.
IC ICM H01M010-40
ICS H01B001-06
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST electrolyte **compn siloxane** polymer **nonaq** lithium secondary battery
IT **Battery electrolytes**
(**electrolytic composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT **Polysiloxanes**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytic **composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT Secondary **batteries**
(lithium; **electrolytic composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT **444025-85-8**, Poly[oxy(dimethoxysilylene)] 450358-41-5
597542-22-8 597542-24-0 597542-25-1
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytic **composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT **90076-65-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(metal ion; electrolytic **composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT 1344-28-1, Aluminum oxide (Al2O3), uses 7631-86-9, Aerosil 50, uses 13463-67-7, P25, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(microparticle; electrolytic **composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
IT **444025-85-8**, Poly[oxy(dimethoxysilylene)] **597542-22-8**
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytic **composition** containing **siloxane** polymer for **nonaq**. lithium secondary battery)
RN 444025-85-8 HCAPLUS
CN Poly[oxy(dimethoxysilylene)] (9CI) (CA INDEX NAME)



RN 597542-22-8 HCAPLUS
CN Poly[oxy[(2-methoxy-2-oxoethoxy)methylsilylene]] (9CI) (CA INDEX NAME)



IT **90076-65-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(metal ion; electrolytic **composition** containing **siloxane** polymer for **nonaq.** lithium secondary battery)
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



L38 ANSWER 6 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:715813 HCAPLUS
DN 139:232999
TI Crosslinked polymer **solid** electrolyte from crosslinked **polysiloxane**-polyether and lithium secondary batteries
IN Miura, Katsuhito; Nakamura, Seiji; Tabuchi, Masato; Murakami, Satoshi
PA Daiso Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

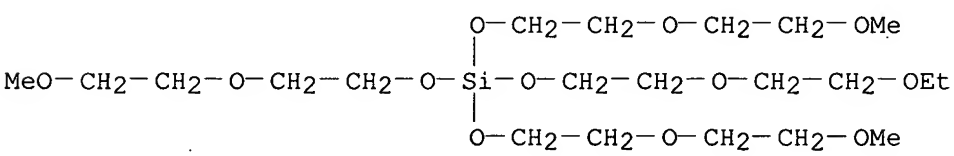
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003257239	A2	20030912	JP 2002-59990	20020306
PRAI JP 2002-59990		20020306		

AB The crosslinked polymer **solid** electrolyte comprises (A) a **siloxane** compound having ≥2 crosslinkable functional groups, (B) a polymer having an ether bond containing a crosslinkable functional group, (C) an electrolyte **salt** compound such as a **Li salt** compound, and optionally (D) a **siloxane** compound having a reactive group. The crosslinked polymer **solid** electrolyte has excellent mech. strength and flexibility for fabrication and molding, in addition to the improved ion conductivity
IC ICM H01B001-06
ICS C08K003-00; C08L071-02; C08L083-07; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 35, 38, 72, 76
ST crosslinked polymer **solid** electrolyte **polysiloxane** polyether; lithium secondary **battery electrolyte**
IT **Battery electrolytes**
(crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT Secondary **batteries**
(lithium; crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT **Polysiloxanes**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**siloxane**-; crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT 594865-91-5P 594865-92-6P **594865-94-8P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT 252343-44-5P 551933-94-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
IT **594865-94-8P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(crosslinked polymer **solid electrolyte** for lithium secondary **battery**)
RN 594865-94-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with dimethylsilanediol block polymer with oxirane bis(2-methyl-2-propenoate), methyloxirane, oxirane and silicic acid (H4SiO4) 2-(2-ethoxyethoxy)ethyl tris[2-(2-methoxyethoxy)ethyl] ester (9CI) (CA INDEX NAME)

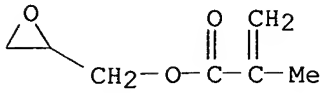
CM 1

CRN 594865-93-7
CMF C21 H46 O12 Si



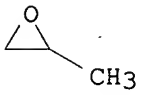
CM 2

CRN 106-91-2
CMF C7 H10 O3



CM 3

CRN 75-56-9
CMF C3 H6 O



CM 4

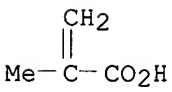
CRN 75-21-8
CMF C2 H4 O

CM 5

CRN 180470-47-7
CMF C4 H6 O2 . 1/2 (C2 H8 O2 Si . C2 H4 O)x

CM 6

CRN 79-41-4
CMF C4 H6 O2

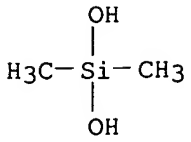


CM 7

CRN 156309-06-7
CMF (C2 H8 O2 Si . C2 H4 O)x
CCI PMS

CM 8

CRN 1066-42-8
CMF C2 H8 O2 Si



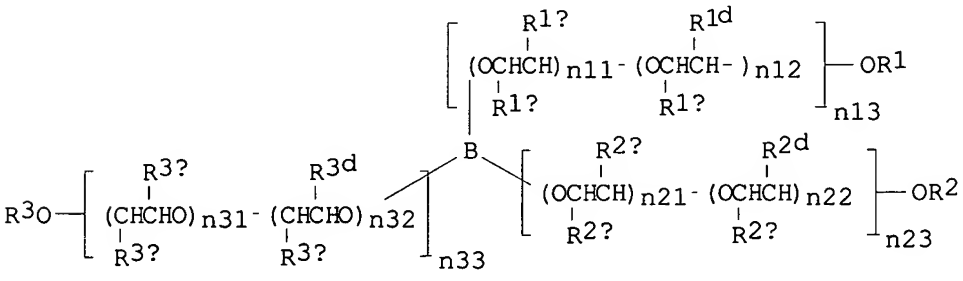
CM 9

CRN 75-21-8
CMF C2 H4 O

L38 ANSWER 7 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:694134 HCAPLUS
DN 139:232985
TI Polymer **solid electrolyte** and polymer **solid electrolyte battery**
IN Bando, Toshinori; Kuratomi, Junichi; Ono, Tetsuo
PA Yuasa Corporation, Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003249266	A2	20030905	JP 2002-48481	20020225
PRAI JP 2002-48481		20020225		

OS MARPAT 139:232985
GI



I

AB The electrolyte contains an electrolyte salt and a polymer; where the polymer has repeating structure units derived from a compound I [R1 = C>1 nonpolymerizable functional group; R2, R3 = polymerizable functional

group; R1a, R1b, R1c, R1d, R2a, R2b, R2c, R2d, R3a, R3b, R3c, R3d = H or C1-3 alkyl group; n11, n12, n13, n21, n22, n23, n31, n32, n33 = integer 0-100; (n21 + n22 + n23) .++. 0; (n31 + n32 + n33) .++. 0; n13(n11+n12)> n23(n21+n22)> n33(n31+n32)]. The **battery** has the above **electrolyte**, a cathode containing a transition metal oxide based active mass and an anode containing a Li alloy, Li, or Li-intercalating substance based anode material.

IC ICM H01M010-40
ICS C08G065-28; C08G065-332; H01B001-06

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary **battery solid electrolyte** polymer **compn**

IT Secondary **batteries**
(**lithium**; **solid electrolytes** containing **electrolyte salts** and polymers for secondary **lithium** batteries)

IT **Battery electrolytes**
Polymer electrolytes
(**solid electrolytes** containing **electrolyte salts** and polymers for secondary **lithium** batteries)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(anode; **solid** electrolytes containing electrolyte **salts** and polymers for secondary **lithium** batteries)

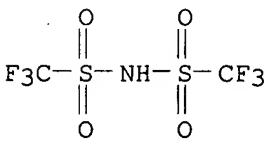
IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; **solid** electrolytes containing electrolyte **salts** and polymers for secondary **lithium** batteries)

IT **90076-65-6 512206-28-9**
RL: DEV (Device component use); USES (Uses)
(**solid** electrolytes containing electrolyte **salts** and polymers for secondary **lithium** batteries)

IT **90076-65-6 512206-28-9**
RL: DEV (Device component use); USES (Uses)
(**solid** electrolytes containing electrolyte **salts** and polymers for secondary **lithium** batteries)

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)

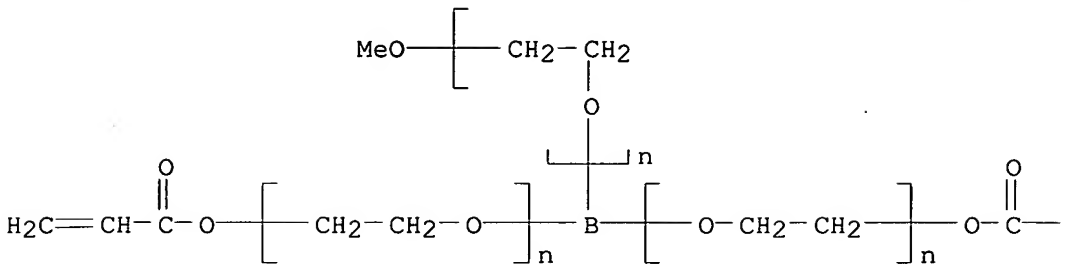


● Li

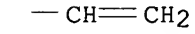
RN 512206-28-9 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), ω-methoxy-ω',ω''-bis[(1-oxo-2-propenyl)oxy]-α,α',α''-borylidynetris- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L38 ANSWER 8 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:389969 HCAPLUS
DN 138:388171
TI **Lithium salt** having oligoether group, ionic conducting material, and liquid **electrolyte** for secondary **battery**
IN Fujinami, Tatsuo
PA Toyota Motor Corp., Japan; Konpon Kenkyusho K. K.
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003146941	A2	20030521	JP 2001-344886	20011109
	US 2003108798	A1	20030612	US 2002-290201	20021108
PRAI	JP 2001-344886	A	20011109		

OS MARPAT 138:388171
AB The claimed **Li salt** is represented as LiAlXn(OY)4-n; (X = electron-withdrawing group; Y = oligoether group). The claimed ionic conducting material comprises the **Li salt** dispersed in a matrix. Optionally, the ionic conducting material comprises BaTiO3. The claimed liquid electrolyte comprises the **Li salt** dissolved in a solvent. The **Li salt** provides high ionic conductivity without using a **nonaq**. solvent and safety.
IC ICM C07C053-18
ICS H01B001-06; H01M010-40; C07F001-02; C07F005-06
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST **lithium salt** oligoether aluminate ion conductor; polymer **electrolyte lithium salt** oligoether aluminate secondary **battery** safety; liq electrolyte

lithium salt oligoether aluminate

IT **Battery electrolytes**
Ionic conductivity
Ionic conductors
Polymer electrolytes
Safety
(aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** complex; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT **528521-95-1 528521-96-2**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT 7439-93-2D, **Lithium**, polymer complex 9003-11-6D, Ethylene oxide-propylene oxide copolymer, **lithium** complex 9003-42-3D, Polyethyl methacrylate, **lithium** complex 9003-63-8D, Polybutyl methacrylate, **lithium** complex 9011-14-7D, Polymethyl methacrylate, **lithium** complex 9011-17-0D, Hexafluoropropylene-vinylidene fluoride copolymer, **lithium** complex 24937-79-9D, Poly(vinylidene fluoride), **lithium** complex 25322-68-3D, **lithium** complex 26915-72-0D, Methoxypolyethylene glycol methacrylate, **lithium** complex
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT 12047-27-7, Barium titanium oxide (BaTiO3), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(filler; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT 528521-93-9P **528521-94-0P**
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT 76-05-1, Trifluoroacetic acid, reactions 112-35-6, Triethylene glycol monomethyl ether 16853-85-3, Aluminum lithium tetrahydride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

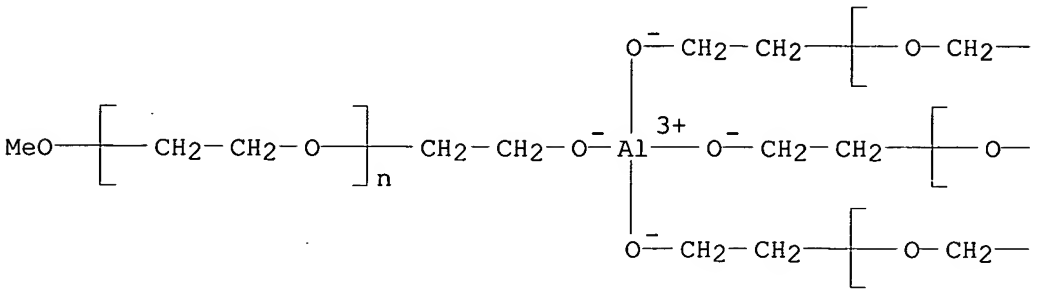
IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4, Ethylene glycol dimethyl ether 111-96-6, Diethylene glycol dimethyl ether 616-38-6, Dimethyl carbonate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

IT **528521-95-1 528521-96-2**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)

RN 528521-95-1 HCAPLUS

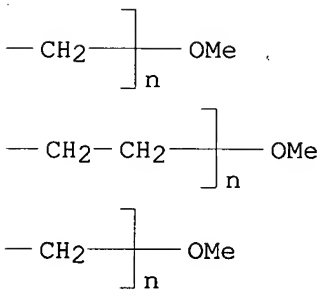
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-methoxy-, ether with lithium (T-4)-tetrakis(1,2-ethanediolato-κO)aluminate(1-) (4:1) (9CI) (CA INDEX NAME)

PAGE 1-A



● Li^+

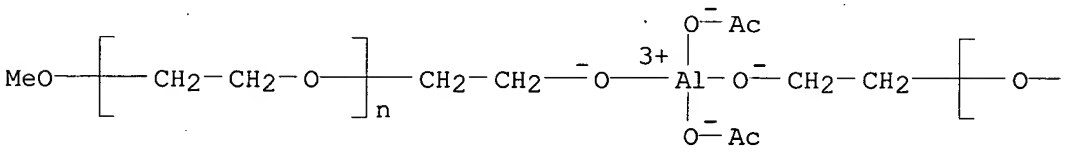
PAGE 1-B



RN 528521-96-2 HCAPLUS

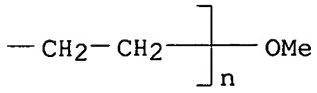
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-methoxy-, ether with lithium (T-4)-bis(acetato-κO)bis(1,2-ethanediolato-κO)aluminate(1-) (2:1) (9CI) (CA INDEX NAME)

PAGE 1-A

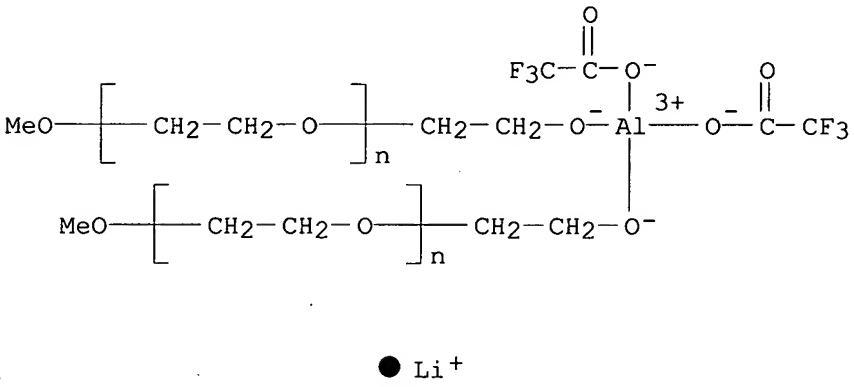


● Li^+

PAGE 1-B



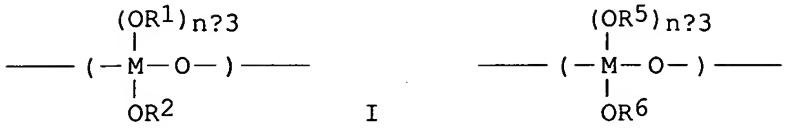
IT **528521-94-0P**
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of; aluminate-structure **lithium salt** having oligoether group for ionic conducting material and liquid electrolyte)
RN 528521-94-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-methoxy-, ether with lithium (T-4)-bis(1,2-ethanediolato-κO)bis(trifluoroacetato-κO)aluminate(1-) (2:1) (9CI) (CA INDEX NAME)



L38 ANSWER 9 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:317759 HCAPLUS
DN 138:341089
TI Polymerizable polymer compound, its manufacture, crosslinked polymer compound, its manufacture, **electrolyte composition**, and secondary **nonaqueous electrolyte battery**
IN Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003123841	A2	20030425	JP 2001-313722	20011011
PRAI	JP 2001-313722		20011011		

GI



I II

AB The polymerizable polymer compound has partial structure I (R1,R2 = alkyl or allyl group; R1 and/or R2 has a polymerizable group as substituent group; M = Si, B or metal element; n = valence of M); and is prepared by reacting a polymer compound, having partial structure II (R5,R6 = alkyl or allyl group; M = Si, B or metal element; n = valence of M) with an alc. compound R1OH or R2OH (R1 and R2 are alkyl or allyl group, containing polymerizable group as substituent group). The crosslinked polymer compound is obtained by crosslinking the polymerizable polymer compound The electrolyte **composition** contains the crosslinked polymer compound and an alkali or alkaline metal salt. The battery has a cathode, an anode and the above electrolyte **composition**

IC ICM H01M010-40
ICS C08F299-02; C08G077-38; C08G079-00; H01B001-06

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary **battery electrolyte compn** polymer compd manuf

IT Secondary batteries
(manufacture of crosslinkable polymer compds. for secondary **battery electrolytes**)

IT **Battery electrolytes**
(manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)

IT 15773-66-7, Tin **silicate** (SnSiO3) 188198-63-2 268202-54-6
RL: DEV (Device component use); USES (Uses)
(anode; manufacture of crosslinkable polymer compds. for secondary **battery electrolytes**)

IT 12031-65-1, Lithium nickel oxide (LiNiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; manufacture of crosslinkable polymer compds. for secondary **battery electrolytes**)

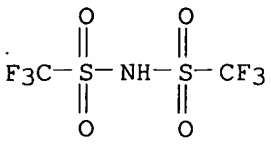
IT 12057-17-9D, Lithium manganese oxide (LiMn2O4), homopolymer 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)

IT **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)

IT **11099-06-2P** 12002-26-5P 517891-65-5P 517891-66-6P 517891-67-7P 517891-68-8P 517891-69-9P 517891-70-2P
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)

IT **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



IT **11099-06-2P**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of crosslinkable polymer compds. in **electrolytes** for secondary lithium **batteries**)
RN 11099-06-2 HCAPLUS
CN Silicic acid, ethyl ester (9CI) (CA INDEX NAME)

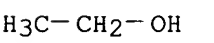
CM 1

CRN 1343-98-2
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 64-17-5
CMF C2 H6 O



L38 ANSWER 10 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:317640 HCAPLUS
DN 138:324047
TI Liquid-crystalline **polysiloxanes** and their uses in electrolyte **compositions** for (photo)electrochemical cells and secondary **nonaqueous** batteries
IN Yasuda, Takayasu; Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 33 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003123531	A2	20030425	JP 2001-322124	20011019
PRAI JP 2001-322124		20011019		

AB The electrolyte **compns**. contain liquid-crystalline **polysiloxanes** having repeating units [O(SiR1R2O)nL1XL2] (R1, R2 = alkyl, alkoxy; L1, L2 = divalent linking group, single bond; X = mesogen; R1, R2, L1, L2, and/or X has ionic substituent; n ≥1) and are used in electrochem. cells, charge-transporting layers in photoelectrochem. cells, and secondary **nonaq**. batteries. Liquid-crystalline **polysiloxanes** having repeating units [O(SiR1R2O)nL1(Q1YQ2)n'L2] (R1, R2 = alkyl, alkoxy; L1, L2 = C1-24 alkylene, alkyleneoxy, single bond; Q1, Q2 = divalent linking group, single bond; Y = divalent 4-7 membered ring, its condensed ring; R1, R2, L1, L2, and/or Y has ionic substituent; n ≥1; n' = 1-3) are also claimed. The cells and the batteries using the **compns**. have high durability, photoelec. conversion characteristics, cycle performance, etc.

IC ICM H01B001-06
ICS C08G077-48; H01M006-18; H01M010-40; H01M014-00

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 75, 76

ST electrochem cell liq crystal **polysiloxane** electrolyte; photoelectrochem cell liq crystal **polysiloxane** electrolyte; **nonaq battery** liq crystal **polysiloxane electrolyte**

IT **Battery electrolytes**
Electrochemical cells
Liquid crystals, polymeric
Photoelectrochemical cells
Polyelectrolytes
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary **nonaq**. batteries)

IT **Polysiloxanes**, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary **nonaq**. batteries)

IT Secondary batteries
(lithium; liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary **nonaq**. batteries)

IT **512773-47-6P**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary **nonaq**. batteries)

IT **512773-51-2** 512773-53-4 512773-56-7 512773-58-9 **512773-70-5** **512773-73-8** **512773-77-2** **512773-92-1**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary **nonaq**. batteries)

IT 350507-46-9P 512774-00-4P 512774-03-7P 512774-08-2P 512774-14-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns**. for (photo)electrochem. cells and secondary

nonaq. batteries)

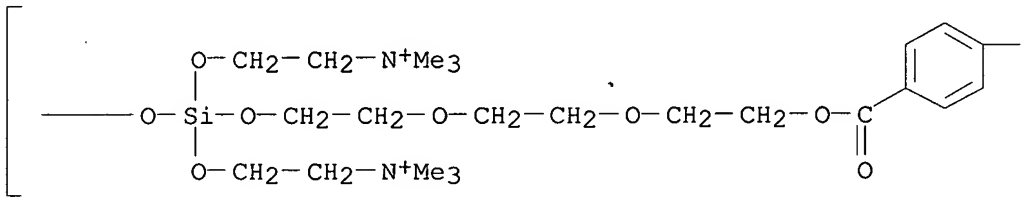
IT 108-59-8, Dimethyl malonate 627-32-7 872-85-5, 4-Pyridinecarboxaldehyde 4667-38-3, **Dichlorodiethoxysilane** 88088-72-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns.** for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT **512773-47-6P**
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns.** for (photo)electrochem. cells and secondary **nonaq.** batteries)

RN 512773-47-6 HCAPLUS

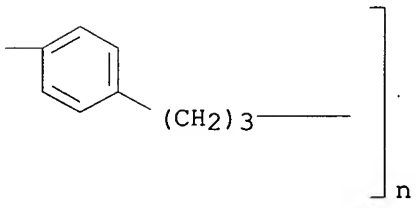
CN Poly[oxy[bis[2-(trimethylammonio)ethoxy]silylene]oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxycarbonyl[1,1'-biphenyl]-4,4'-diyl-1,3-propanediyl diiodide] (9CI) (CA INDEX NAME)

PAGE 1-A



●2 I^-

PAGE 1-B



IT **512773-51-2 512773-70-5 512773-73-8 512773-77-2 512773-92-1**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(liquid-crystalline **polysiloxanes** with ionic groups in electrolyte **compns.** for (photo)electrochem. cells and secondary **nonaq.** batteries)

RN 512773-51-2 HCAPLUS

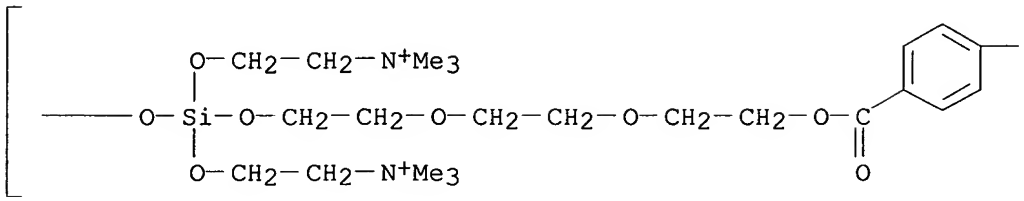
CN Poly[oxy[bis[2-(trimethylammonio)ethoxy]silylene]oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxycarbonyl[1,1'-biphenyl]-4,4'-diyl-1,3-propanediyl salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methane

sulfonamide (1:2)] (9CI) (CA INDEX NAME)

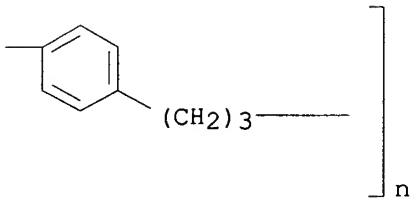
CM 1

CRN 512773-50-1
CMF (C32 H52 N2 O8 Si)n
CCI PMS

PAGE 1-A

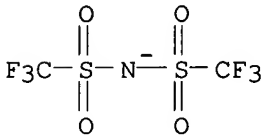


PAGE 1-B

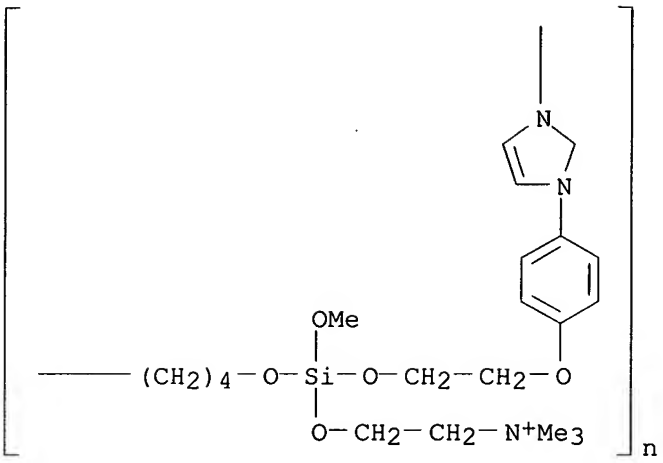


CM 2

CRN 98837-98-0
CMF C2 F6 N O4 S2



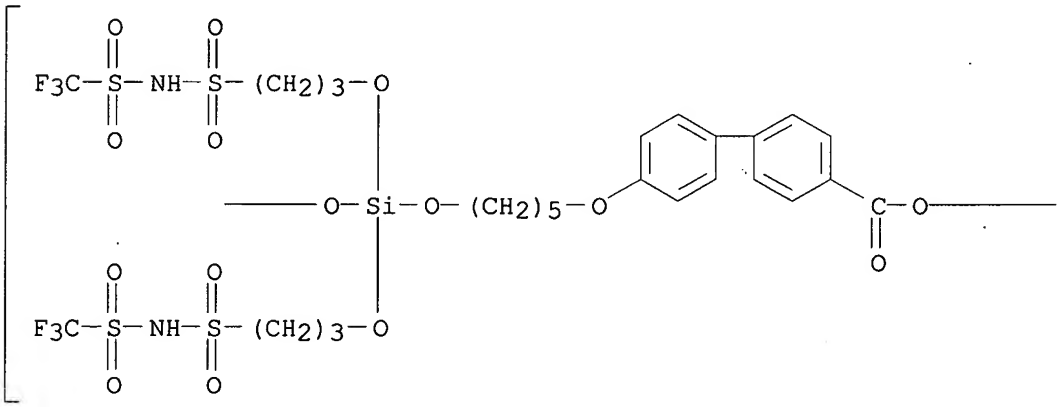
RN 512773-70-5 HCAPLUS
CN Poly[1H-imidazolium-1,3-diyl-1,4-phenyleneoxy-1,2-ethanediyloxy[methoxy[2-(trimethylammonio)ethoxy]silylene]oxy-1,4-butanediyl diiodide] (9CI) (CA INDEX NAME)



●2 I^-

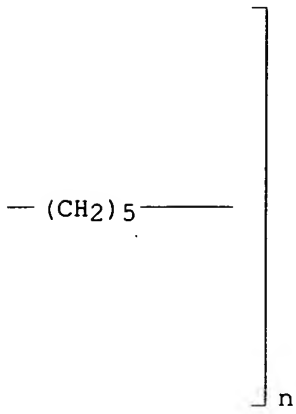
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RN 512773-73-8 HCAPLUS
CN Poly[oxy[bis[3-[[[(trifluoromethyl)sulfonyl]amino]sulfonyl]propoxy]silylene]oxy-1,5-pentanediyloxy[1,1'-biphenyl]-4,4'-diylcarbonyloxy-1,5-pentanediyl dilithium salt] (9CI) (CA INDEX NAME)

PAGE 1-A



●2 Li

PAGE 1-B

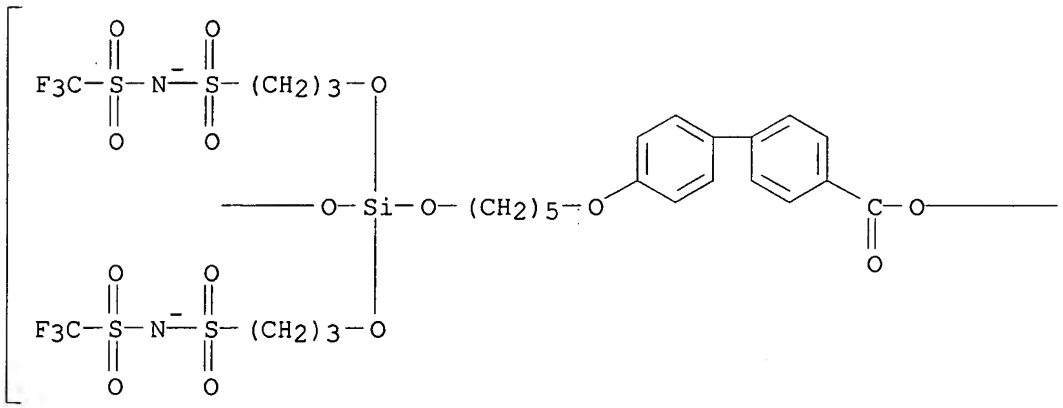


RN 512773-77-2 HCAPLUS
CN Poly[oxy[bis[3-[[[(trifluoromethyl)sulfonyl]amino]sulfonyl]propoxy]silylene]oxy-1,5-pentanediyloxy[1,1'-biphenyl]-4,4'-diylcarbonyloxy-1,5-pentanediyl bis(1-ethyl-3-methyl-1H-imidazolium)] (9CI) (CA INDEX NAME)

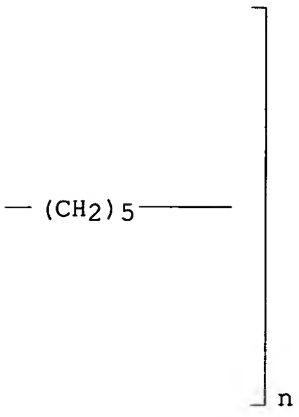
CM 1

CRN 512773-76-1
CMF (C31 H40 F6 N2 O15 S4 Si)n
CCI PMS

PAGE 1-A

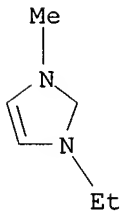


PAGE 1-B



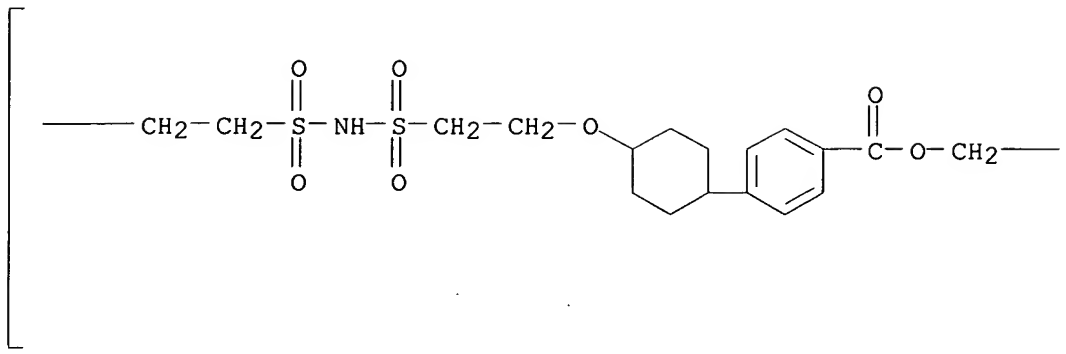
CM 2

CRN 65039-03-4
CMF C6 H11 N2



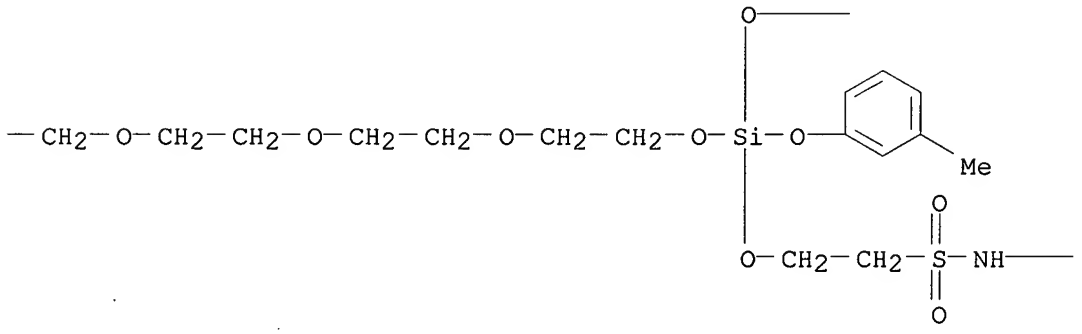
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RN 512773-92-1 HCAPLUS
CN Poly[oxy[(3-methylphenoxy)[2-[[[(trifluoromethyl)sulfonyl]amino]sulfonyl]ethoxy]silylene]oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxycarbonyl-1,4-phenylene-trans-1,4-cyclohexanediyloxy-1,2-ethanediylsulfonyliminosulfonyl-1,2-ethanediyl dilithium salt] (9CI) (CA INDEX NAME)

PAGE 1-A

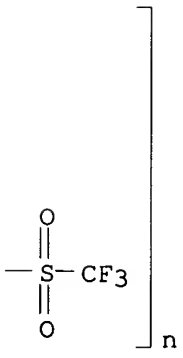


●2 Li

PAGE 1-B



PAGE 1-C



L38 ANSWER 11 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:240271 HCAPLUS
DN 138:257903
TI Polymer **solid electrolyte** and its use in lithium **battery**
IN Bando, Toshinori; Kuratomi, Junichi; Ono, Tetsuo
PA Yuasa Corporation, Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003092138	A2	20030328	JP 2001-280936	20010917
PRAI JP 2001-280936		20010917		

AB The electrolyte is made of ionic salt-containing covalent bond-free polymer alloys containing (1) polyethers with tridimensional network structures and (2) B- and polyether-containing polymers, e.g., B[(OCH2CH2)nOMe]3. The electrolyte improves Li ion transport number and gives the battery with high energy d., charge-discharge cycle performance, and safety without leakage.
IC ICM H01M010-40
ICS C08K003-00; C08K005-00; C08L071-00; C08L071-02; C08L075-04; H01B001-06
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery** polyether polymer alloy **electrolyte** safety; boron polyether polymer alloy **solid** electrolyte; polyether network structure polymer alloy **solid** electrolyte
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic, semi-interpenetrating polymer networks; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)
IT Polyethers, uses
RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(boron-containing; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)
IT Secondary batteries
(**lithium**; **salt**-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)
IT Acrylic polymers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, semi-interpenetrating polymer networks; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)
IT **Battery electrolytes**
Polymer electrolytes
(salt-containing polymer alloy **solid electrolyte** for Li

battery with high energy d. and cycle performance)

IT Interpenetrating polymer networks
(semi-interpenetrating; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

IT **90076-65-6, Lithium** bis(trifluoromethylsulfonyl)amide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**salt**-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

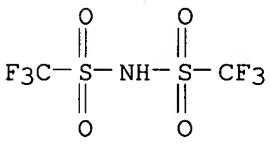
IT 9003-11-6DP, Ethylene oxide-propylene oxide copolymer, triol derivs., triacrylates, polymers
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

IT **64631-20-5**
RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

IT **90076-65-6, Lithium** bis(trifluoromethylsulfonyl)amide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**salt**-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)

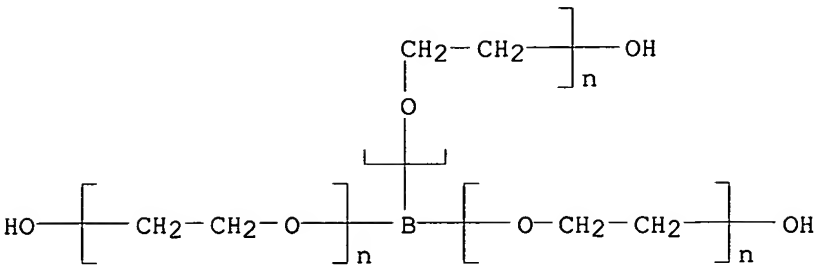


● Li

IT **64631-20-5**
RL: DEV (Device component use); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(semi-interpenetrating polymer networks; salt-containing polymer alloy **solid electrolyte** for Li **battery** with high energy d. and cycle performance)

RN 64631-20-5 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



L38 ANSWER 12 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:167055 HCAPLUS
DN 138:207820
TI Electrolyte **compositions** and their use in electrochemical cells, photoelectrochemical cells, and secondary **nonaqueous** batteries
IN Yasuda, Takayasu; Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 30 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003064259	A2	20030305	JP 2001-256050	20010827
PRAI JP 2001-256050		20010827		

AB The **compns.** comprise **polysiloxanes** having repeating units Si(OR1)(OR2)O (R1, R2 = alkyl, alkyleneoxy) and liquid-crystalline ionic compds., e.g., compds. having mesogen-containing anions and (in)organic cations.

The photoelectrochem. cells have charge-transporting layers containing the electrolyte **compns.**, dye-sensitized semiconductor-containing photosensitive layers, and electrodes on conductive supports. The nonvolatile **compns.** have high durability, ion conductivity, and charge-transporting property and give the cells and the batteries with good cycle performance, photoelec. conversion, etc.

IC ICM C08L083-06
ICS C08K005-00; C08L101-12; H01B001-06; H01M006-18; H01M010-40; H01M014-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 75
ST photoelectrochem cell electrolyte **polysiloxane** liq cryst ionic compd; **battery electrolyte polysiloxane** liq cryst ionic compd
IT **Battery electrolytes**
Electrochemical cells
Liquid crystals
Liquid crystals, polymeric
Photoelectrochemical cells
(**electrolyte compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)
IT **Polysiloxanes**, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT Secondary **batteries**
(lithium; **electrolyte compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT 500163-09-7P
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT **180027-63-8 189282-51-7 189282-53-9,** Poly[oxy(diethoxysilylene)] **444025-85-8,** Poly[oxy(dimethoxysilylene)] 500163-11-1 500163-14-4 500163-16-6 500163-18-8 500163-19-9 500163-21-3 500163-22-4 500163-24-6 500163-26-8 500163-30-4 500163-32-6 500163-33-7
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT 85689-41-4P 139475-37-9P 202813-37-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

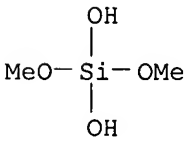
IT 108-59-8, Dimethyl malonate 112-29-8, 1-Bromodecane 638-45-9 872-85-5, 4-Pyridinecarboxaldehyde
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

IT **180027-63-8 189282-51-7 189282-53-9,** Poly[oxy(diethoxysilylene)] **444025-85-8,** Poly[oxy(dimethoxysilylene)]
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(electrolyte **compns.** containing **polysiloxanes** and liquid-crystalline ionic compds. for (photo)electrochem. cells and secondary **nonaq.** batteries)

RN 180027-63-8 HCAPLUS
CN Silicic acid (H4SiO4), dimethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

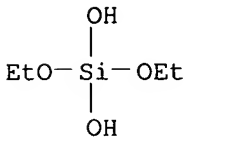
CRN 3555-58-6
CMF C2 H8 O4 Si



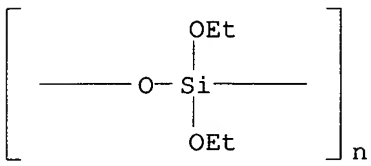
RN 189282-51-7 HCAPLUS
CN Silicic acid (H4SiO4), diethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

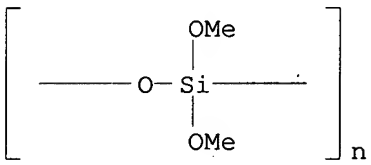
CRN 18165-73-6
CMF C4 H12 O4 Si



RN 189282-53-9 HCAPLUS
CN Poly[oxy(diethoxysilylene)] (9CI) (CA INDEX NAME)



RN 444025-85-8 HCAPLUS
CN Poly[oxy(dimethoxysilylene)] (9CI) (CA INDEX NAME)



L38 ANSWER 13 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:152548 HCAPLUS
DN 138:207801
TI **Electrolyte composition** and secondary **nonaqueous electrolyte battery**
IN Wariishi, Koji
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003059530	A2	20030228	JP 2001-246714	20010815
PRAI	JP 2001-246714		20010815		

GI

I II

AB The electrolyte **composition** contains a polymer having repeating units I [R1, R2 = alkyl or aryl group; and R1 and/or R2 has a substituent group II (R3, R4 = alkyl, aryl, alkoxy, or aryloxy group; R4 = substituent; and n = integer ≥1)], and an alkali metal salt or an alkaline earth metal salt. Preferably, the above electrolyte **composition** is furthermore **solidified** by reacting with a compound containing ≥2 nucleophilic groups. The battery has a cathode and an anode and contains the above described **electrolyte composition** inside the **battery.**

IC ICM H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary **battery electrolyte compn** **polysiloxane**; alkali alk earth metal salt secondary **battery electrolyte**

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(anode; **compns.** of electrolytes containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

IT **Battery electrolytes**
(**compns.** of **electrolytes** containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

IT 58500-40-6, Tin **silicate** 188198-63-2 268202-54-6
RL: DEV (Device component use); USES (Uses)
(anode; **compns.** of electrolytes containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

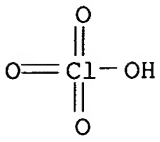
IT 12031-65-1, Lithium nickel oxide (LiNiO2) 12057-17-9, Lithium manganese oxide (LiMn2O4)
RL: DEV (Device component use); USES (Uses)
(cathode; **compns.** of electrolytes containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

IT **7791-03-9**, Lithium perchlorate 12190-79-3, Cobalt lithium oxide (CoLiO2) **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6** 156327-07-0 500307-57-3 500307-59-5 500307-61-9 500307-63-1 500307-65-3 **500307-67-5** 500307-68-6 500307-70-0 500307-71-1 500307-72-2
RL: DEV (Device component use); USES (Uses)
(**compns.** of electrolytes containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6** **500307-67-5**
RL: DEV (Device component use); USES (Uses)
(**compns.** of electrolytes containing **polysiloxane** derivs. and alkali or alkaline metal salts for secondary batteries)

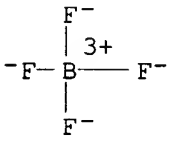
RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



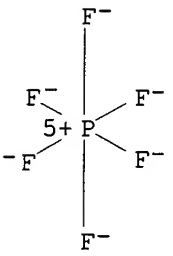
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



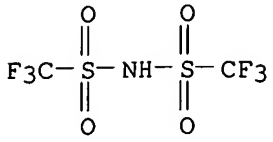
● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

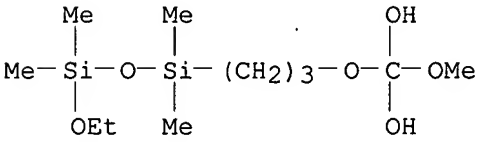
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



RN 500307-67-5 HCAPLUS
CN 2,4,9,11-Tetraoxa-8,10-disilatridecane-3,3-diol, 8,8,10,10-tetramethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 500307-66-4
CMF C11 H28 O6 Si2



L38 ANSWER 14 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:81086 HCAPLUS
DN 138:356128
TI **Solid** state electrolytes prepared from PEO(360) silanated silica
AU Maitra, P.; Ding, J.; Liu, B.; Wunder, S. L.; Lin, H.-P.; Chua, D.; Salomon, M.
CS Department of Chemistry, Temple University, Philadelphia, PA, 19122, USA
SO Proceedings of the Power Sources Conference (2002), 40th, 183-186
CODEN: PPOCFD
PB National Technical Information Service
DT Journal
LA English
AB **Solid** composite electrolytes were prepared using fumed SiO2 silanated with an oligomeric polyethylene oxide **silane** containing 6-9 ethylene oxide repeating units, a PEO matrix and LiClO4 (O/Li = 8/1). PEO-**silane** covalently attached to the SiO2 was amorphous, with a Tg that increased from -90° to -53° after attachment. The conductivity of films prepared using the PEO-silanated SiO2 increased to 6 + 10-5 S/cm at RT compared with .apprx.1 + 10-5 S/cm for films prepared with unsilanated SiO2.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST polyethylene oxide **silane** fumed silica composite **battery electrolyte**
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(lithium complexes, **electrolyte** containing; **solid** composite **battery electrolyte** prepared from fumed

silica silanated with poly(ethylene oxide) **silane**)

IT **Battery electrolytes**
Solid electrolytes
(**solid** composite **battery electrolyte**
prepared from fumed silica silanated with poly(ethylene oxide)
silane)

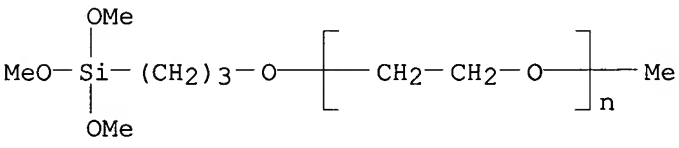
IT 7631-86-9, Silica, uses 9011-17-0, Vinylidene fluoride-hexafluoropropylene copolymer 25322-68-3D, Poly(ethylene oxide), lithium complexes
RL: DEV (Device component use); USES (Uses)
(**electrolyte** containing; **solid** composite **battery electrolyte** prepared from fumed silica silanated with poly(ethylene oxide) **silane**)

IT **65994-07-2P**
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrolyte** containing; **solid** composite **battery electrolyte** prepared from fumed silica silanated with poly(ethylene oxide) **silane**)

IT 7439-93-2D, Lithium, poly(ethylene oxide) complexes **7791-03-9**, Lithium perchlorate (LiClO4)
RL: DEV (Device component use); USES (Uses)
(**electrolyte; solid** composite **battery electrolyte** prepared from fumed silica silanated with poly(ethylene oxide) **silane**)

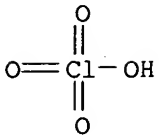
IT **65994-07-2P**
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrolyte** containing; **solid** composite **battery electrolyte** prepared from fumed silica silanated with poly(ethylene oxide) **silane**)

RN 65994-07-2 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-methyl-ω-[3-(trimethoxysilyl)propoxy]- (9CI) (CA INDEX NAME)



IT **7791-03-9**, Lithium perchlorate (LiClO4)
RL: DEV (Device component use); USES (Uses)
(**electrolyte; solid** composite **battery electrolyte** prepared from fumed silica silanated with poly(ethylene oxide) **silane**)

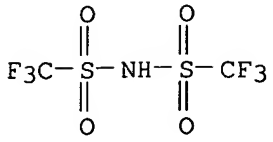
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



● Li

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 15 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:81085 HCAPLUS
DN 138:356127
TI New **polysiloxane** polymer **electrolyte** for lithium **batteries**
AU Amine, K.; Oh, B.; Hyung, Y.; Vissers, D.; West, R.; Tsukamoto, H.
CS Argonne National Laboratory, IL, USA
SO Proceedings of the Power Sources Conference (2002), 40th, 180-182
CODEN: PPOCFD
PB National Technical Information Service
DT Journal
LA English
AB A network-type **solid** polymer electrolyte (SPE) with mono comb **polysiloxane** was produced. The ionic conductivity of the network polymer electrolyte was .apprx.10-4 S/cm at room temperature A LiNi0.8Co0.2O2/polymer **electrolyte**/Li **battery** had excellent cycling characteristics with no capacity fade. The new **polysiloxane** SPE system could be a promising system for large batteries with long-life and inherent safety requirements such as batteries for elec. vehicles.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **polysiloxane** ethylene oxide polymer **electrolyte** safety lithium **battery**
IT **Battery electrolytes**
Polymer electrolytes
(**polysiloxane**-ethylene oxide copolymer **electrolyte** for lithium **batteries**)
IT 7439-93-2D, Lithium, **polysiloxane** complexes **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(electrolyte; **polysiloxane**-ethylene oxide copolymer **electrolyte** for lithium **batteries**)
IT 163424-14-4D, lithium complexes **518359-70-1D**, lithium complexes
RL: DEV (Device component use); USES (Uses)
(**polysiloxane**-ethylene oxide copolymer **electrolyte** for lithium **batteries**)
IT **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(electrolyte; **polysiloxane**-ethylene oxide copolymer **electrolyte** for lithium **batteries**)
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)

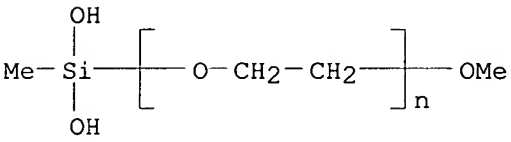


Li

IT **518359-70-1D**, lithium complexes
RL: DEV (Device component use); USES (Uses)
(**polysiloxane**-ethylene oxide copolymer **electrolyte** for lithium **batteries**)
RN 518359-70-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(dihydroxymethylsilyl)-ω-methoxy-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 518359-69-8
CMF (C2 H4 O)n C2 H8 O3 Si
CCI PMS



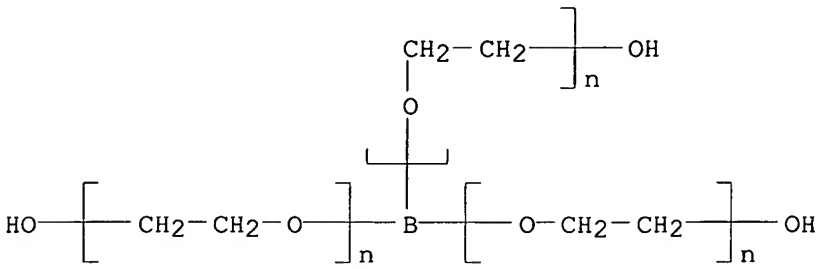
L38 ANSWER 16 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:936877 HCAPLUS
DN 138:290328
TI Thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery
AU Kato, Yuki; Suwa, Kentaro; Yokoyama, Shoichi; Yabe, Takeshi; Ikuta, Hiromasa; Uchimoto, Yoshiharu; Wakihara, Masataka
CS Department of Applied Chemistry, Tokyo Institute of Technology, Graduate School of Science and Engineering, Meguro-ku, Tokyo, 152-8552, Japan
SO Solid State Ionics (2002), 152-153, 155-159
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB A novel polymer electrolyte having borate ester groups, which are fixed to the backbone chain of the polymer, was prepared The backbone polymer was synthesized by reaction between polyethylene glycol and boric acid anhydride. The highest conductivity was found for the polymer electrolyte sample prepared by the polyethylene glycol having average mol. weight of 600 (PEG600), the values of the ionic conductivity were 5.8 + 10-5 S cm-1 at 30° and 2.6 + 10-4 S cm-1 at 60°, resp. The **solid** polymer electrolytes have relatively high thermal stability and electrochem.

stability.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST thermally stable polymer **electrolyte** borate ester lithium secondary **battery**
IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(PEG 200, PEG 400, PEG 600, PEG 1000, PET 2000; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT Stability
(electrochem.; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT Secondary **batteries**
(lithium; thermally stable **solid** polymer **electrolyte** containing borate ester groups for lithium secondary battery)
IT Cyclic voltammetry
Electric current-potential relationship
(of PEO-boric acid ester polymer/salt complexes; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT Borates
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyethylene glycol esters, complexes with LiTFSI; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT Crosslinking
(thermal stability enhanced by; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT **Battery electrolytes**
Ionic conductivity
Polymer electrolytes
Thermal stability
(thermally stable **solid** polymer **electrolyte** containing borate ester groups for lithium secondary battery)
IT 25322-68-3, 1,2-Ethanediol, homopolymer
RL: RCT (Reactant); RACT (Reactant or reagent)
(PEG 200, PEG 400, PEG 600, PEG 1000, PET 2000; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT **64631-20-5P**, Polyethylene glycol boric acid ester
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with LiTFSI; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT 17341-24-1P, preparation **90076-65-6P**, Lithium bis-trifluoromethanesulfonylimide
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with polyethylene glycol boric acid esters; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT 111-46-6, Diethylene glycol, reactions 112-27-6, Triethylene glycol 1303-86-2, Boric acid anhydride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)
IT **64631-20-5P**, Polyethylene glycol boric acid ester
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(complexes with LiTFSI; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)

RN 64631-20-5 HCAPLUS

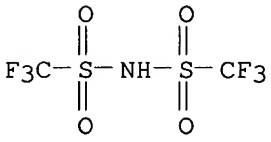
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-hydroxy- (9CI) (CA INDEX NAME)



IT **90076-65-6P**, Lithium bis-trifluoromethanesulfonylimide
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(complexes with polyethylene glycol boric acid esters; thermally stable **solid** polymer electrolyte containing borate ester groups for lithium secondary battery)

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 17 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:830191 HCAPLUS

DN 137:327447

TI **Solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries

IN Ulrich, Ralph; Zwanziger, Josef W.; De Paul, Susan; Spiess, Hans Wolfgang; Wiesner, Ulrich

PA Germany

SO U.S., 9 pp.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6472104	B1	20021029	US 2000-528988	20000320

PRAI US 2000-528988 20000320

AB **Solid** hybrid polymer electrolytes are prepared by: (1) reacting a mixture of a silicon-containing reactive precursor and a hydrolyzable aluminum salt, to form a sol, (2) adding a polyoxyalkylene-containing polymer and a **lithium salt** to the mixture or the sol reaction product from step (1), in which the polyoxyalkylene-containing polymer has a mol. weight of 100-10,000, and (3) reacting the mixture from step (2) to form the **solid** organic-inorg. hybrid polymer electrolyte. The silicon-containing precursor, which has the formula (R1)nSi(OR)4-n (in which R1 = C1-10-alkyl, containing a compatibilizing function, preferably -O-CH2-C2H3O (glycidyl ether), n = 1 or 2, and R = C1-8-alkyl), is preferably (3-glycidyloxy)propyl **trimethoxysilane**. The aluminum-containing precursor has the formula Al(OR)3 (R = C1-8-alkyl, preferably sec-butyl). A suitable polyoxyalkylene is polyethylene oxide; suitable **lithium salts** include carboxylates and sulfonates, especially halogenated (i.e., fluorinated) organic anions, such as triflate. The polymer electrode with a three-dimensional network structure has a glass transition temperature of <-20°, a mech. modulus of ≥107 MPa, and a conductivity of ≥10-5 S/cm at room temperature An addnl. embodiment is that the polyoxyalkylene is a block copolymer having hydrophilic polyethylene oxide blocks and hydrophobic blocks, selected from polyisoprene, polybutadiene, polymethyl **siloxane**, poly(Me Ph **siloxane**), poly-C3-4-acrylates, poly-C3-4-methacrylates, hydrogenated polyisoprene, polybutadiene, etc. The product, which has high-strength, high conductivity, and a high lithium transference number, can be self-organized into nanometer-scale plates and rods.

IC ICM H01M006-14

NCL 429302000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **solid** hybrid polymer **electrolyte** secondary **battery**; silica alumina polyoxyalkylene **solid** hybrid polymer electrolyte; polyoxyethylene silica alumina sol polymer electrolyte

IT **Polysiloxanes**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(Me Ph, polyoxyalkylene-, block, with hard and soft segments, polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(Me hydrogen **siloxane**-, block, with hard and soft segments, polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT **Polysiloxanes**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(Me hydrogen, polyoxyalkylene-, block, with hard and soft segments, polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT **Silanes**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(alkylalkoxy, (glycidyl)alkyl alkoxy; **solid** hybrid polymer

electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Metal alkoxides
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(aluminum, alumina source; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(block, with hard-and-soft segments, **solid** electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Perfluoro compounds
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(carboxylic acids, **salts, lithium salts,** complexes with polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Polymer morphology
(domain, hard-and-soft segments; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Sulfonic acids, uses
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(perfluoro, **lithium salts,** complexes with polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Carboxylic acids, uses
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(perfluoro, **salts, lithium salts,** complexes with polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(reaction products with (3-glycidyloxy)**propyltrimethoxysilane** and aluminum sec-butoxide, lithium ion-complexed, electrolyte; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT **Battery electrolytes**
Electric conductivity
Nanostructures
Solid electrolytes
(**solid** hybrid polymer **electrolytes** prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT Perfluoro compounds

RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(sulfonic acids, **lithium salts**, complexes with polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT 25322-68-3P, Aluminum tris(sec-butoxide)
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(blends with **glycidyloxypropyltrimethoxysilane**-alumina hybrid polymer, electrolyte; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT 25322-68-3DP, Polyethylene oxide, reaction products with (3-glycidyloxy)**propyltrimethoxysilane** and aluminum sec-butoxide
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(lithium ion-complexed, electrolyte; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT **196190-04-2P**, (3-Glycidyloxy)**propyltrimethoxysilane**
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(polyethylene glycol blends, electrolyte; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT 67-66-3, Chloroform, uses 109-99-9, Tetrahydrofuran, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

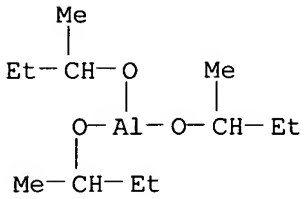
IT 78-79-5D, Isoprene, block copolymers with polyoxyalkylenes 79-10-7D, Acrylic acid, C3-4-alkyl esters, block polymers with polyoxyalkylenes 79-41-4D, Methacrylic acid, C3-4-alkyl esters, block polymers with polyoxyalkylenes 106-99-0D, Butadiene, block copolymers with polyoxyalkylenes
RL: NUU (Other use, unclassified); USES (Uses)
(with hard and soft segments, polymer electrolytes; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

IT **196190-04-2P**, (3-Glycidyloxy)**propyltrimethoxysilane**
RL: DEV (Device component use); NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(polyethylene glycol blends, electrolyte; **solid** hybrid polymer electrolytes prepared from alumina-(glycidyloxyalkyl)**silane**-based sols and polyoxyalkylenes, especially for secondary lithium batteries)

RN 196190-04-2 HCAPLUS
CN Aluminum, tris(2-butanolato)-, polymer with trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

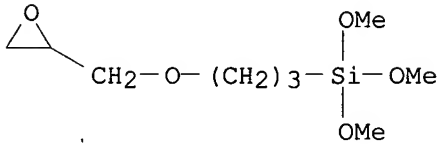
CM 1

CRN 129770-44-1
CMF C12 H27 Al O3



CM 2

CRN 2530-83-8
CMF C9 H20 O5 Si



RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 18 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:788042 HCAPLUS
DN 138:41935
TI Influence of PEG-borate ester on thermal property and ionic conductivity of the polymer electrolyte
AU Kato, Y.; Hasumi, K.; Yokoyama, S.; Yabe, T.; Ikuta, H.; Uchimoto, Y.; Wakihara, M.
CS Graduate School of Science and Engineering, Department of Applied Chemistry, Tokyo Institute of Technology, Meguro-ku, Tokyo, 152-8552, Japan
SO Journal of Thermal Analysis and Calorimetry (2002), 69(3), 889-896
CODEN: JTACF7; ISSN: 1418-2874
PB Kluwer Academic Publishers
DT Journal
LA English
AB The use of poly(ethylene glycol) (PEG)-borate ester as a plasticizer for **solid** polymer **electrolytes** in lithium-ion **batteries**, was studied. Addition of the PEG-borate ester to the electrolyte increases the ionic conductivity of the polymer electrolyte. Measurement of the glass-transition temperature of the polymer electrolyte with DSC indicated that the increased ionic conductivity is due to an increase in ionic mobility. A study of the temperature dependence of the ionic conductivity of the polymer electrolytes, using the William-Landel-Ferry equation, indicated that the PEG-borate ester does not influence the dissociation of the **Li salt**.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium ion **battery** polyethylene glycol borate ester polymer **electrolyte**; polyethylene glycol borate ester plasticizer polymer electrolyte property

IT **Battery electrolytes**
Glass transition temperature
Ionic conductivity
(influence of PEG-borate ester plasticizer on glass transition temperature and ionic conductivity of polymer **electrolyte** for **batteries**)

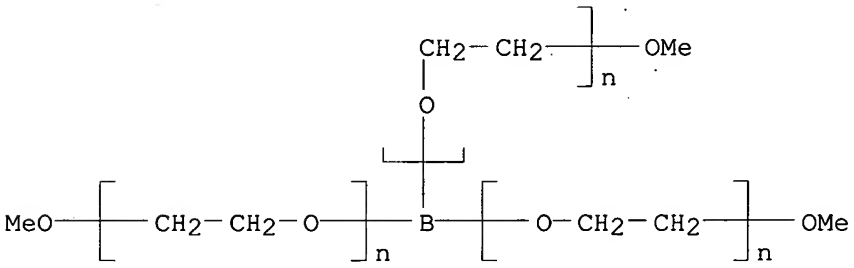
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(influence of PEG-borate ester plasticizer on glass transition temperature and ionic conductivity of polymer **electrolyte** for **batteries**)

IT 37281-56-4, Polyethylene glycol methacrylate-polyethylene glycol dimethacrylate copolymer
RL: DEV (Device component use); USES (Uses)
(crosslinked, electrolyte; influence of PEG-borate ester plasticizer on glass transition temperature and ionic conductivity of polymer **electrolyte** for **batteries**)

IT **75915-45-6**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(influence of PEG-borate ester plasticizer on glass transition temperature and ionic conductivity of polymer **electrolyte** for **batteries**)

IT **75915-45-6**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(influence of PEG-borate ester plasticizer on glass transition temperature and ionic conductivity of polymer **electrolyte** for **batteries**)

RN 75915-45-6 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-borylidynetris[ω-methoxy- (9CI) (CA INDEX NAME)



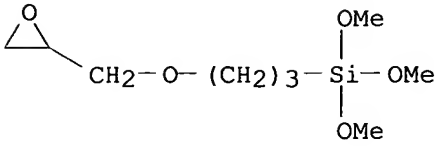
RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 19 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:658886 HCAPLUS
DN 138:6398
TI **Solid** hybrid polymer electrolyte networks: nano-structurable materials for lithium batteries
AU Ulrich, Ralph; Zwanziger, Josef W.; De Paul, Susan M.; Reiche, Annette; Leuninger, Heike; Spiess, Hans W.; Wiesner, Ulrich
CS Max Planck Institute for Polymer Research, Mainz, D-55021, Germany
SO Advanced Materials (Weinheim, Germany) (2002), 14(16), 1134-1137
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH

DT Journal
LA English
AB The electrochem. and mech. performance of a **solid** hybrid polymer (SHyP) electrolyte network that combines the advantages of cross-linked networks with those of composites, were evaluated. This composite can be self-organized, using diblock copolymer technol., into nanometer-scale plates and rods, enabling fabrication of Li-conducting cables. The basis of the SHyP electrolyte network is an organically modified 3-dimensional ceramic network, rich in Lewis acid sites, which is molecularly compatible with polyethylene oxide (PEO). This hybrid material is prepared by hydrolyzing (3-glycidyloxypropyl)**trimethoxysilane** and aluminum sec-butoxide in 0.01N HCl and the resulting sol is blended with PEO and lithium triflate. This SHyP electrolyte shows no evidence of PEO crystallization, it has a high ion conductivity, high transference nos., excellent mech. strength, and a potential for nanostructureability.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium **battery electrolyte solid** org inorg hybrid polymer; **glycidyloxypropyltrimethoxysilane** aluminum butoxide polyethylene oxide lithium triflate hybrid electrolyte
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(lithium complexes; hybrid polymer electrolyte containing hydrolyzed **glycidyloxypropyltrimethoxysilane**-aluminum butoxide polymer blended with PEO-lithium triflate complex for lithium batteries)
IT **Battery electrolytes**
Hybrid organic-inorganic materials
(**solid** hybrid polymer **electrolyte** networks for lithium **batteries**)
IT **200112-85-2**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(crosslinked; hybrid polymer electrolyte containing hydrolyzed **glycidyloxypropyltrimethoxysilane**-aluminum butoxide polymer blended with PEO-lithium triflate complex for lithium batteries)
IT 7439-93-2D, Lithium, poly(ethylene oxide) complexes 25322-68-3D, Polyethylene oxide, lithium complexes 33454-82-9, Lithium triflate
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(hybrid polymer electrolyte containing hydrolyzed **glycidyloxypropyltrimethoxysilane**-aluminum butoxide polymer blended with PEO-lithium triflate complex for lithium batteries)
IT **200112-85-2**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(crosslinked; hybrid polymer electrolyte containing hydrolyzed **glycidyloxypropyltrimethoxysilane**-aluminum butoxide polymer blended with PEO-lithium triflate complex for lithium batteries)
RN 200112-85-2 HCAPLUS
CN 2-Butanol, aluminum salt, polymer with trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

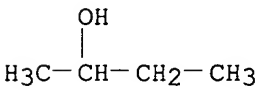
CM 1

CRN 2530-83-8
CMF C9 H20 O5 Si



CM 2

CRN 2269-22-9
CMF C4 H10 O . 1/3 Al



●1/3 Al

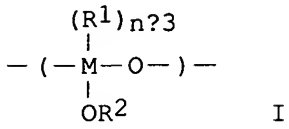
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 20 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:656112 HCAPLUS
DN 137:203950
TI Method for preparation of electrolyte composition for nonaqueous electrolyte secondary battery
IN Wariishi, Koji; Yasuda, Takayasu; Senga, Takeshi
PA Fuji Photo Film Co., Ltd., Japan
SO Eur. Pat. Appl., 65 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1235294	A2	20020828	EP 2002-3925	20020221
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002252030	A2	20020906	JP 2001-46723	20010222
	JP 2002298918	A2	20021011	JP 2001-97417	20010329
	US 2002155354	A1	20021024	US 2002-80067	20020222 <--
PRAI	JP 2001-46723	A	20010222		
	JP 2001-97417	A	20010329		

OS MARPAT 137:203950
GI

applicant



I

AB An electrolyte composition that contains a molten salt, having a specific structure (I), a silicon polymer, and a salt of a metal ion of Group 1 or 2 of the Periodic Table; and a nonaq. electrolyte secondary cell containing the electrolyte composition are disclosed. Also disclosed are an electrolyte composition that contains a polymer compound having repetitive units of a structure of the formula I, and a salt of a metal ion of Group 1 or 2 of the Periodic Table; a method for producing the electrolyte composition; and a nonaq. electrolyte secondary cell containing the electrolyte composition

IC ICM H01M010-36
ICS H01M010-40; C08L083-00; C08G077-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38

ST battery nonaq electrolyte siloxane polymer

IT Battery electrolytes
Ionic conductivity
Secondary batteries
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

IT Silicates, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

IT 143314-16-3 174899-82-2 324574-91-6 344790-86-9
RL: DEV (Device component use); USES (Uses)
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6**, Lithium triflimide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

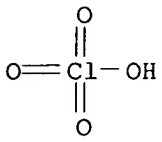
IT 450358-41-5P 450358-41-5P
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

IT 450358-42-6P 450358-42-6P 450358-43-7P 450358-43-7P 450358-44-8P 450358-44-8P 450358-45-9P 450358-45-9P 450358-46-0P 450358-46-0P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6**, Lithium triflimide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

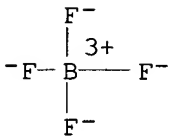
(method for preparation of electrolyte composition for nonaq. electrolyte secondary battery)

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



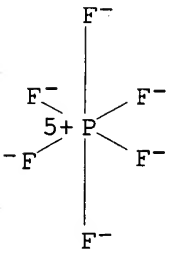
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



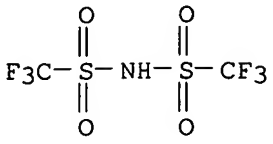
● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

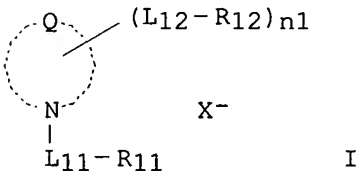
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



L38 ANSWER 21 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:553509 HCAPLUS
DN 137:127526
TI Electrolyte **composition** with high ion conductivity and high ion transport number and **nonaqueous electrolyte** secondary **batteries**
IN Wariishi, Koji; Sen, Masakazu; Ono, Michio
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 24 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002208433	A2	20020726	JP 2001-325587	20011023
PRAI JP 2000-323202	A	20001023		

OS MARPAT 137:127526
GI



AB The **compns.** contain (A) ≥1 compds. selected from I, R21L21A+(L22R22)(L23R23)(L24R24) X- and R31L31N+(L32R32):C[N(L33R33)(L34R34)][N(L35R35)(L36R36)] X- (Q = group for forming 5- or 6-membered aromatic cation; L11-12, L21-24, L31-36 = (un)substituted alkylene(oxy) and/or alkenylene(oxy); R11-12, R21-24, R31-36 = H, OM(OR)n, may form ring; ≥1 of R11-12, R21-24, R31-36 = OM(OR)n; R = (un)substituted alkyl or aryl; M = Si, B, Ti, Al, Ge, Sn; n1 = 0, natural number; X- = anion) and (B) salts of Group IA or IIA ions. Preferable Markush structures for I are further specified. Also claimed are **solid** electrolyte **compns.** containing crosslinked compds. of component A, obtained by reaction of A with compds. having ≥2 nucleophilic groups in a mol., instead of component A. **Nonaq. electrolyte** secondary **batteries** with the said **electrolyte compns.** are also claimed. Batteries with high capacity and excellent cycle characteristics are obtained.
IC ICM H01M010-40

ICS H01M010-40; C09K003-16; H01B001-06
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST **nonaq electrolyte compn** secondary **battery**; imidazolinium salt **nonaq electrolyte** secondary **battery**; quaternary ammonium **nonaq electrolyte** secondary **battery**; polyoxyalkylene ionene polymer **solid electrolyte battery**
IT **Battery electrolytes**
Polymer electrolytes
Solid state secondary batteries
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ionene-, **lithium** complex; ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT Secondary **batteries**
(**nonaq**. **electrolyte**; ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT Ionene polymers
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, **lithium** complex; ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT 7439-93-2DP, Lithium, polyoxyalkylene-ionene polymer complexes
444045-88-9P 444045-89-0P 444045-91-4P **444046-10-0DP**, **lithium** complex **444046-11-1DP**, **lithium** complex **444046-12-2DP**, **lithium** complex **444046-14-4DP**, **lithium** complex **444046-15-5DP**, **lithium** complex **444046-16-6DP**, **lithium** complex **444046-17-7DP**, **lithium** complex **444046-18-8DP**, **lithium** complex **444046-19-9DP**, **lithium** complex **444046-20-2DP**, **lithium** complex **444046-21-3DP**, **lithium** complex
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT **90076-65-6**
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq**. secondary **batteries**)
IT 444045-96-9 444045-97-0 444045-98-1 444045-99-2 444046-01-9 444046-02-0 444046-03-1 444046-04-2 444046-05-3 444046-07-5 444046-09-7
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

IT 444045-79-8P 444045-80-1P 444045-81-2P 444045-82-3P 444045-83-4P 444045-84-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

IT 444045-86-7P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

IT 74-88-4, Methyl iodide, reactions 105-59-9, N-Methyldiethanolamine 624-76-0, Iodoethanol 998-30-1, **Triethoxysilane** 1615-14-1, 1H-Imidazole-1-ethanol 7783-93-9, Silver perchlorate 13439-84-4, Pentamethylguanidine 14104-20-2, Silver tetrafluoroborate
RL: RCT (Reactant); RACT (Reactant or reagent)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

IT **7791-03-9, Lithium** perchlorate **14283-07-9, Lithium** tetrafluoroborate **21324-40-3, Lithium** hexafluorophosphate 444045-93-6 444045-95-8
RL: TEM (Technical or engineered material use); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

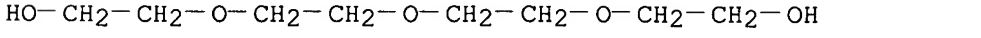
IT **444046-10-0DP, lithium** complex **444046-11-1DP, lithium** complex **444046-12-2DP, lithium** complex **444046-14-4DP, lithium** complex **444046-15-5DP, lithium** complex **444046-16-6DP, lithium** complex **444046-17-7DP, lithium** complex **444046-18-8DP, lithium** complex **444046-19-9DP, lithium** complex **444046-20-2DP, lithium** complex **444046-21-3DP, lithium** complex
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)

RN 444046-10-0 HCAPLUS

CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 2,2'-[oxybis(2,1-ethanediyloxy)]bis[ethanol] (9CI) (CA INDEX NAME)

CM 1

CRN 112-60-7
CMF C8 H18 O5

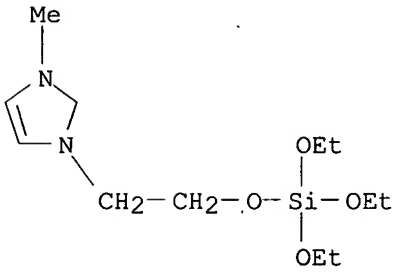


CM 2

CRN 444045-88-9
CMF C12 H25 N2 O4 Si . C2 F6 N O4 S2

CM 3

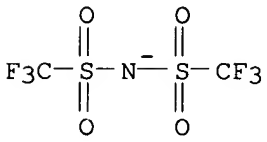
CRN 444045-87-8
CMF C12 H25 N2 O4 Si



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 4

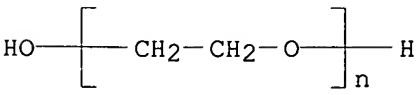
CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-11-1 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

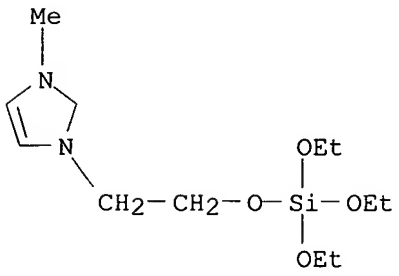


CM 2

CRN 444045-88-9
CMF C12 H25 N2 O4 Si . C2 F6 N O4 S2

CM 3

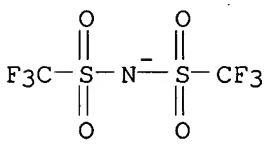
CRN 444045-87-8
CMF C12 H25 N2 O4 Si



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 4

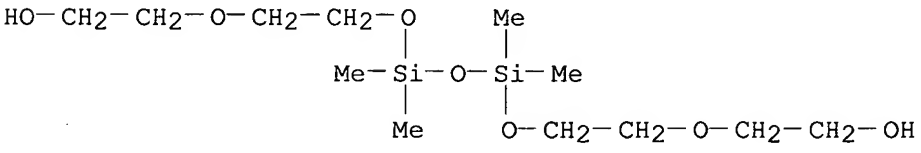
CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-12-2 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 7,7,9,9-tetramethyl-3,6,8,10,13-pentaoxa-7,9-disilapentadecane-1,15-diol (9CI) (CA INDEX NAME)

CM 1

CRN 61854-15-7
CMF C12 H30 O7 Si2

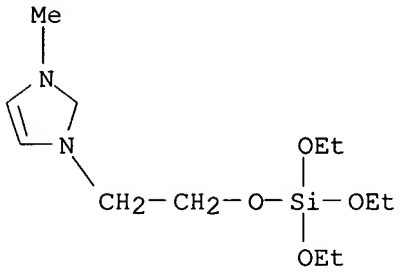


CM 2

CRN 444045-88-9
CMF C12 H25 N2 O4 Si . C2 F6 N O4 S2

CM 3

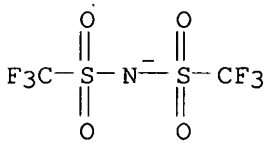
CRN 444045-87-8
CMF C12 H25 N2 O4 Si



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 4

CRN 98837-98-0
CMF C2 F6 N O4 S2



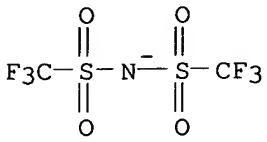
RN 444046-14-4 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 2-hydroxy-N-(2-hydroxyethyl)-N,N-dimethylethanaminium salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 444046-13-3
CMF C6 H16 N O2 . C2 F6 N O4 S2

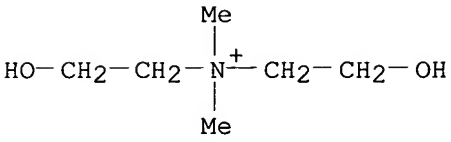
CM 2

CRN 98837-98-0
CMF C2 F6 N O4 S2



CM 3

CRN 44798-79-0
CMF C6 H16 N O2

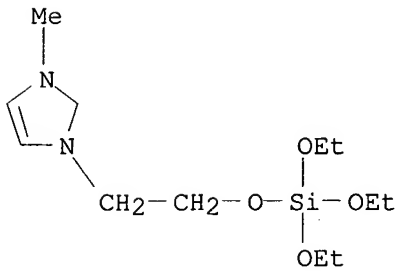


CM 4

CRN 444045-88-9
CMF C12 H25 N2 O4 Si . C2 F6 N O4 S2

CM 5

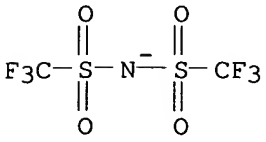
CRN 444045-87-8
CMF C12 H25 N2 O4 Si



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 6

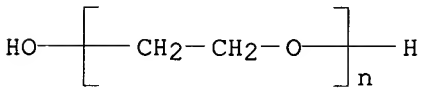
CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-15-5 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-[2-[(triethoxysilyl)oxy]ethyl]-, tetrafluoroborate(1-), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

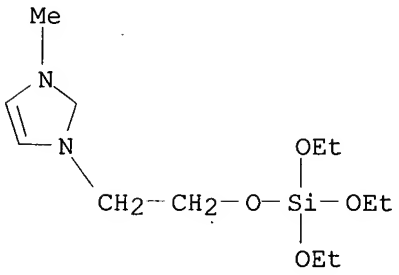


CM 2

CRN 444045-89-0
CMF C12 H25 N2 O4 Si . B F4

CM 3

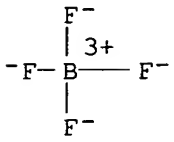
CRN 444045-87-8
CMF C12 H25 N2 O4 Si



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 4

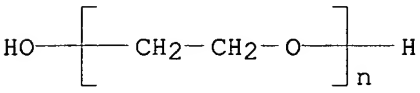
CRN 14874-70-5
CMF B F4
CCI CCS



RN 444046-16-6 HCAPLUS
CN 1H-Imidazolium, 1,3-bis[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

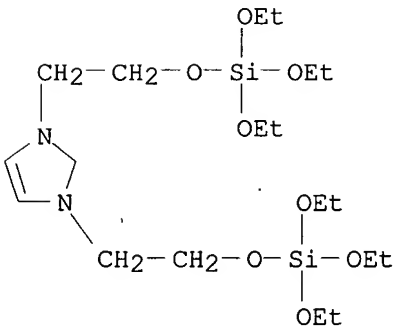


CM 2

CRN 444045-97-0
CMF C19 H41 N2 O8 Si2 . C2 F6 N O4 S2

CM 3

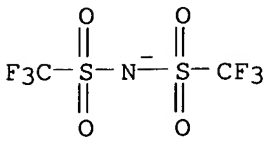
CRN 444045-94-7
CMF C19 H41 N2 O8 Si2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 4

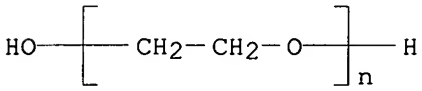
CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-17-7 HCAPLUS
CN Pyridinium, 1,4-bis[2-[(triethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

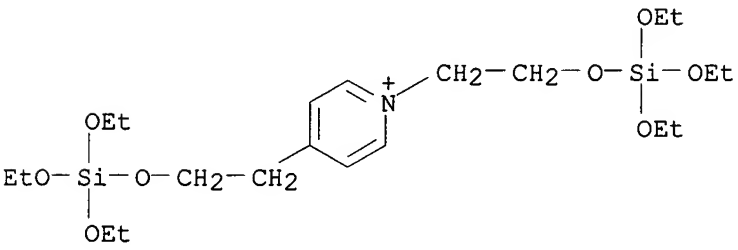


CM 2

CRN 444046-03-1
CMF C21 H42 N O8 Si2 . C2 F6 N O4 S2

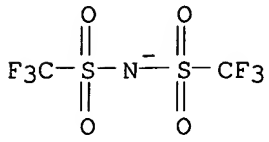
CM 3

CRN 444045-92-5
CMF C21 H42 N O8 Si2



CM 4

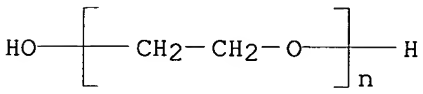
CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-18-8 HCAPLUS
CN Ethanaminium, N,N-dimethyl-2-[(triethoxysilyl)oxy]-N-[2-[(triethoxysilyl)oxy]ethyl]-, tetrafluoroborate(1-), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

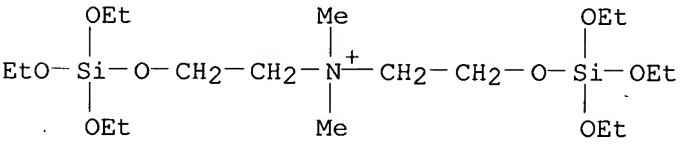


CM 2

CRN 444046-04-2
CMF C18 H44 N O8 Si2 . B F4

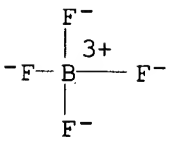
CM 3

CRN 444045-85-6
CMF C18 H44 N O8 Si2



CM 4

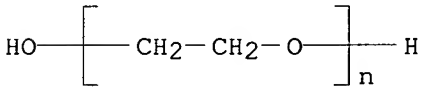
CRN 14874-70-5
CMF B F4
CCI CCS



RN 444046-19-9 HCAPLUS
CN Ethanaminium, N,N-dimethyl-2-[(trimethoxysilyl)oxy]-N-[2-[(trimethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

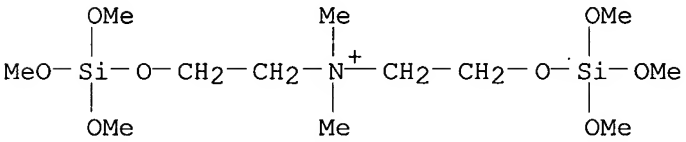


CM 2

CRN 444046-09-7
CMF C12 H32 N O8 Si2 . C2 F6 N O4 S2

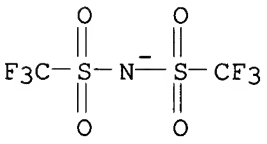
CM 3

CRN 444046-08-6
CMF C12 H32 N O8 Si2



CM 4

CRN 98837-98-0
CMF C2 F6 N O4 S2

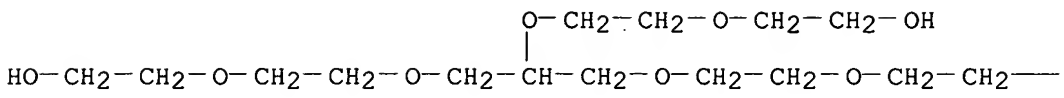


RN 444046-20-2 HCAPLUS
CN Ethanaminium, N,N-dimethyl-2-[(trimethoxysilyl)oxy]-N-[2-[(trimethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 8-[2-(2-hydroxyethoxy)ethoxy]-3,6,10,13-tetraoxapentadecane-1,15-diol (9CI) (CA INDEX NAME)

CM 1

CRN 133988-72-4
CMF C15 H32 O9

PAGE 1-A



PAGE 1-B

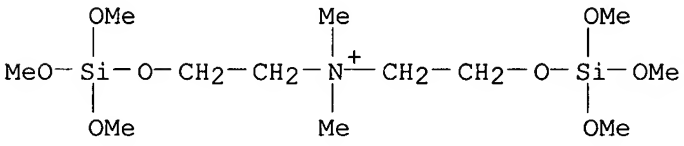
—OH

CM 2

CRN 444046-09-7
CMF C12 H32 N O8 Si2 . C2 F6 N O4 S2

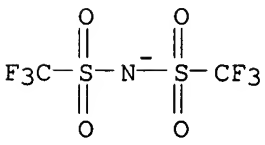
CM 3

CRN 444046-08-6
CMF C12 H32 N O8 Si2



CM 4

CRN 98837-98-0
CMF C2 F6 N O4 S2



RN 444046-21-3 HCAPLUS
CN Ethanaminium, N,N-dimethyl-2-[(trimethoxysilyl)oxy]-N-[2-[(trimethoxysilyl)oxy]ethyl]-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1), polymer with 2-hydroxy-N-(2-hydroxyethyl)-N,N-dimethylethanaminium salt with

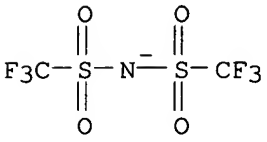
1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 444046-13-3
CMF C6 H16 N O2 . C2 F6 N O4 S2

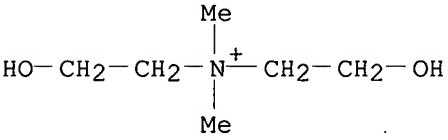
CM 2

CRN 98837-98-0
CMF C2 F6 N O4 S2



CM 3

CRN 44798-79-0
CMF C6 H16 N O2

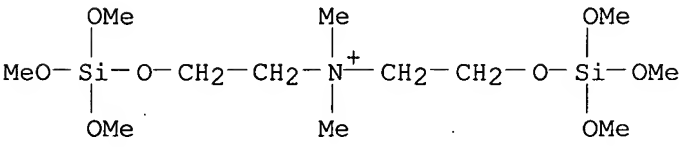


CM 4

CRN 444046-09-7
CMF C12 H32 N O8 Si2 . C2 F6 N O4 S2

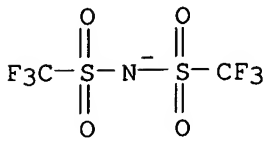
CM 5

CRN 444046-08-6
CMF C12 H32 N O8 Si2

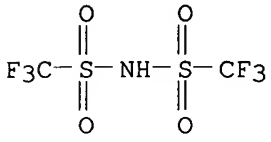


CM 6

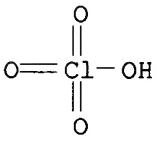
CRN 98837-98-0
CMF C2 F6 N O4 S2



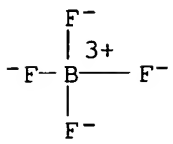
IT **90076-65-6**
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



IT **7791-03-9, Lithium** perchlorate **14283-07-9, Lithium** tetrafluoroborate **21324-40-3, Lithium** hexafluorophosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(ammonium compound-**Li salt** mixts. or their crosslinked **solids** as **electrolytes** for **nonaq.** secondary **batteries**)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

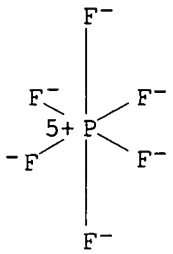


RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

L38 ANSWER 22 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:745708 HCAPLUS
DN 135:275423
TI Manufacture of secondary lithium batteries
IN Hara, Toru
PA Kyocera Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001283922	A2	20011012	JP 2000-90973	20000329
PRAI	JP 2000-90973		20000329		

AB The **batteries**, having a Li+ conducting **solid electrolyte** between Li intercalating electrodes, are prepared by treating electrode active mass particles and electrolyte particles with a **tetraalkoxysilane**, and binding the treated particles with a **monoalkyltrialkoxysilane** polymer or a **monoalkyltrialkoxysilane**-polydialkyl **siloxane** copolymer.
IC ICM H01M010-40
ICS H01M010-40; H01M004-02; H01M004-04; H01M004-62
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** manuf electrode **electrolyte** treatment; **alkoxysilane** secondary lithium **battery** **electrolyte** electrode treatment; **alkylalkoxysilane** polymer binder lithium **battery** electrode **electrolyte**; **dialkylsiloxane** copolymer binder lithium **battery** **electrolyte** electrode

IT Secondary batteries
(lithium; manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

IT **Polysiloxanes**, uses
RL: DEV (Device component use); USES (Uses)
(manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

IT 31900-57-9D, **Dimethylsilanediol** polymer, copolymers with Me **trimethoxysilane** **155694-23-8**, Dimethyl **silanediol**-Methyl **trimethoxysilane** copolymer
RL: DEV (Device component use); USES (Uses)
(manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

IT 12031-92-4, Lithium manganese oxide (Li1.33Mn1.67O4) 120479-61-0, Aluminum lithium titanium phosphate [Al0.3Li1.3Ti1.7(PO4)3] 155472-68-7, Lithium manganese oxide (Li1.1Mn1.9O4)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

IT 78-10-4, **Tetraethoxysilane**
RL: MOA (Modifier or additive use); USES (Uses)
(manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

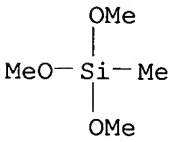
IT **155694-23-8**, Dimethyl **silanediol**-Methyl **trimethoxysilane** copolymer
RL: DEV (Device component use); USES (Uses)
(manufacture of secondary lithium **batteries** with **tetraalkoxysilane** treated electrode and **electrolyte** particles and **siloxane** binders)

RN 155694-23-8 HCAPLUS

CN Silanediol, dimethyl-, polymer with trimethoxymethylsilane (9CI) (CA INDEX NAME)

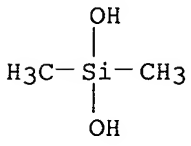
CM 1

CRN 1185-55-3
CMF C4 H12 O3 Si



CM 2

CRN 1066-42-8
CMF C2 H8 O2 Si



L38 ANSWER 23 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:655041 HCAPLUS
DN 135:198014
TI **Solid electrolyte batteries**
IN Hara, Toru
PA Kyocera Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

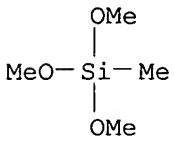
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001243983	A2	20010907	JP 2000-50980	20000228
PRAI JP 2000-50980		20000228		

AB The batteries have a Li intercalating cathode, a Li intercalating anode, and Li+ conducting **solid** electrolyte between the electrodes; where a **monoalkyltrialkoxysilane** polymer, or its copolymer with **tetraalkoxysilane**, is used as binder for electrolyte particles or for electrode active mass particles.
IC ICM H01M010-40
ICS H01M004-02; H01M004-62; H01M006-18; H01M010-36
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lithium battery **siloxane** polymer binder; electrode **siloxane** polymer binder secondary lithium battery; **electrolyte siloxane** polymer binder secondary lithium **battery**
IT Secondary batteries
(lithium; **polysiloxane** binders for electrode active mass particles and **electrolyte** particles for secondary lithium **batteries**)
IT **Polysiloxanes**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**polysiloxane** binders for electrode active mass particles and **electrolyte** particles for secondary lithium **batteries**)
IT 12031-92-4, Lithium manganese oxide (Li1.33Mn1.67O4)
RL: DEV (Device component use); USES (Uses)
(**polysiloxane** binders for anode active mass particles in secondary lithium batteries)
IT 155472-68-7, Lithium manganese oxide (Li1.1Mn1.9O4)
RL: DEV (Device component use); USES (Uses)
(**polysiloxane** binders for cathode active mass particles in secondary lithium batteries)

IT **25498-03-7, Methyltrimethoxysilane** homopolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(**polysiloxane** binders for electrode active mass particles and **electrolyte** particles for secondary lithium **batteries**
)
IT 120479-61-0, Aluminum lithium titanium phosphate [Al0.3Li1.3Ti1.7(PO4)3]
RL: DEV (Device component use); USES (Uses)
(**polysiloxane** binders for **solid electrolyte** particles in secondary lithium **batteries**)
IT **25498-03-7, Methyltrimethoxysilane** homopolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(**polysiloxane** binders for electrode active mass particles and **electrolyte** particles for secondary lithium **batteries**
)
RN 25498-03-7 HCAPLUS
CN Silane, trimethoxymethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1185-55-3
CMF C4 H12 O3 Si



L38 ANSWER 24 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:655038 HCAPLUS
DN 135:229346
TI Secondary lithium batteries
IN Hara, Toru
PA Kyocera Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001243974	A2	20010907	JP 2000-50983	20000228
PRAI JP 2000-50983		20000228		

AB The **batteries**, having a Li+ conducting **solid electrolyte** between a Li intercalating electrode pair, use a **monoalkyltrialkoxysilane** (or **monoallyltrialkoxysilane**)-**polydialkylsiloxane-tetraalkoxysilane** copolymer as binder for electrolyte particles and electrode active mass particles.
IC ICM H01M010-36
ICS H01B001-06; H01B001-08; H01B001-12; H01M004-02; H01M004-62
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery** electrode **electrolyte** **siloxane** binder
IT Secondary **batteries**
(lithium; **siloxane** copolymer binders for **electrolyte**

and electrode active mass particles for secondary lithium batteries)

IT **Polysiloxanes**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**siloxane** copolymer binders for electrolyte and electrode active mass particles for secondary lithium batteries)

IT 12031-92-4, Lithium manganese oxide (Li1.33Mn1.67O4)
RL: DEV (Device component use); USES (Uses)
(anodes containing **siloxane** copolymer binders active mass particles for secondary lithium batteries)

IT 155472-68-7, Lithium manganese oxide (Li1.1Mn1.9O4)
RL: DEV (Device component use); USES (Uses)
(cathodes containing **siloxane** copolymer binders active mass particles for secondary lithium batteries)

IT 120479-61-0, Aluminum lithium titanium phosphate [Al0.3Li1.3Ti1.7(PO4)3]
RL: DEV (Device component use); USES (Uses)
(electrolytes containing **siloxane** copolymer binders active mass particles for secondary lithium batteries)

IT **358750-73-9**
RL: TEM (Technical or engineered material use); USES (Uses)
(t; **siloxane** copolymer binders for electrolyte and electrode active mass particles for secondary lithium batteries)

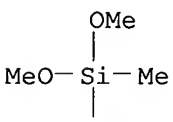
IT **358750-73-9**
RL: TEM (Technical or engineered material use); USES (Uses)
(t; **siloxane** copolymer binders for electrolyte and electrode active mass particles for secondary lithium batteries)

RN 358750-73-9 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester, polymer with dimethylsilanediol and trimethoxymethylsilane (9CI) (CA INDEX NAME)

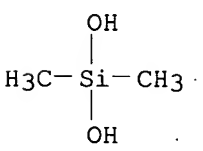
CM 1

CRN 1185-55-3
CMF C4 H12 O3 Si



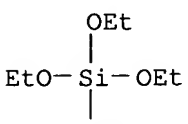
CM 2

CRN 1066-42-8
CMF C2 H8 O2 Si



CM 3

CRN 78-10-4
CMF C8 H20 O4 Si

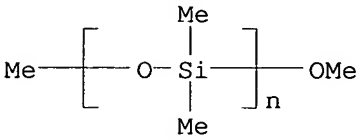


L38 ANSWER 25 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:635715 HCAPLUS
DN 135:183330
TI Releasing films for casting **solid** electrolytes
IN Morimoto, Yukiaki
PA Teijin Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001236992	A2	20010831	JP 2000-44127	20000222
PRAI JP 2000-44127		20000222		

AB The releasing films have a substrate of a polyester, prepared by Ge compound catalytic condensation, and a silicone releasing layer on the surface of the substrate; where the silicone layer has a central line average roughness height ≤0.4 μm, and when an adhesive tape is attached to the releasing layer and then peeled, the amount of Si transferred to the adhesive surface is ≤5 atomic%, determined by electron spectroscopy. The releasing film may have a YSiX3 (X = alkoxy,group, Y = epoxy, amino, vinyl, methacryl, mercapto, or alkoxy groups) crosslinked primer layer between the substrate and the silicone layer. The **solid electrolytes** are useful for secondary Li **batteries**.
IC ICM H01M010-40
ICS B32B027-00; B32B027-36; H01B013-00
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery solid electrolyte** casting releasing film; polyester releasing film silicone coating electrolyte casting
IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing films in casting **battery electrolytes**)
IT **Battery electrolytes**
(polyester substrates for silicone coated releasing films for casting secondary lithium **battery electrolytes**)
IT 2530-83-8, 3-**Glycidoxypropyltrimethoxysilane**
RL: CAT (Catalyst use); USES (Uses)
(crosslinked primer layers in silicone coated polyester releasing films for casting **battery electrolytes**)
IT 157858-56-5, Germanium oxide
RL: CAT (Catalyst use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing films in casting **battery electrolytes**)

IT 25038-59-9, Poly(ethylene terephthalate), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(germanium catalytic condensation polyester substrates for releasing films in casting **battery electrolytes**)
IT **32032-92-1**, Dimethyl **siloxane**, methyl terminated
59942-04-0, Dimethyl **siloxane**, vinyl terminated
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester substrates for silicone coated releasing films for casting **battery electrolytes**)
IT **32032-92-1**, Dimethyl **siloxane**, methyl terminated
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester substrates for silicone coated releasing films for casting **battery electrolytes**)
RN 32032-92-1 HCAPLUS
CN Poly[oxy(dimethylsilylene)], α-methyl-ω-methoxy- (8CI, 9CI)
(CA INDEX NAME)



L38 ANSWER 26 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:564141 HCAPLUS
DN 135:139855
TI **Solid electrolyte batteries**
IN Hara, Toru; Kitahara, Nobuyuki; Uemura, Toshihiko; Mishima, Hiromitsu; Magome, Shinji; Osaki, Makoto; Higuchi, Ei
PA Kyocera Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001210375	A2	20010803	JP 2000-21852	20000126
PRAI	JP 2000-21852		20000126		

AB The batteries have a Li+ conducting crystalline oxide electrolyte between Li+ intercalating oxide cathode and anode, where the electrode active mass particles and the electrolyte particles are bonded by SiO2 or **tetraalkoxysilane**-poly(di-Me **siloxane**) copolymer formed by a sol-gel process.
IC ICM H01M010-40
ICS H01M004-58; H01M006-18
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **solid electrolyte** secondary lithium **battery** electrode binder; secondary lithium **battery** electrode **electrolyte** silica binder; **alkoxysilane siloxane** copolymer binder secondary lithium battery
IT Secondary batteries
(lithium; sol-gel process silica and **silane-siloxane** copolymer binders for electrode active mass and **electrolyte** particles in secondary lithium **batteries**)

IT 78-10-4, **Tetraethoxysilane 160998-16-3**
RL: NUU (Other use, unclassified); USES (Uses)
(in manufacture of electrode active mass and electrolyte particles with silica and **silane-siloxane** copolymer binders for secondary lithium batteries)

IT 12031-92-4, Lithium manganese oxide (Li1.33Mn1.67O4) 120479-61-0, Aluminum lithium titanium phosphate [Al0.3Li1.3Ti1.7(PO4)3] 155472-68-7, Lithium manganese oxide (Li1.1Mn1.9O4)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(sol-gel process silica and **silane-siloxane** copolymer binders for electrode active mass and **electrolyte** particles in secondary lithium **batteries**)

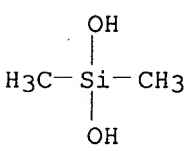
IT 7631-86-9, Silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(sol-gel process silica and **silane-siloxane** copolymer binders for electrode active mass and **electrolyte** particles in secondary lithium **batteries**)

IT **160998-16-3**
RL: NUU (Other use, unclassified); USES (Uses)
(in manufacture of electrode active mass and electrolyte particles with silica and **silane-siloxane** copolymer binders for secondary lithium batteries)

RN 160998-16-3 HCAPLUS
CN Silicic acid (H4SiO4), tetraethyl ester, polymer with dimethylsilanediol (9CI) (CA INDEX NAME)

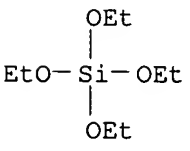
CM 1

CRN 1066-42-8
CMF C2 H8 O2 Si



CM 2

CRN 78-10-4
CMF C8 H20 O4 Si



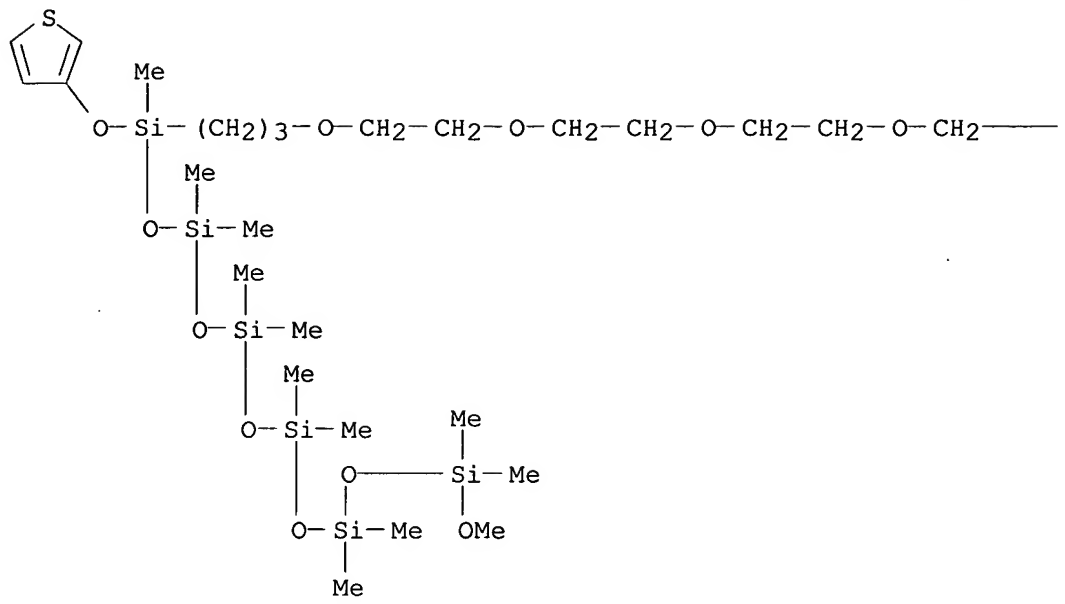
L38 ANSWER 27 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:398871 HCAPLUS
DN 133:107357
TI Modeling of ion transport in **solid** polymer electrolytes

AU Dixon, Brian G.; Bhamidipati, Murty; Morris, R. Scott; Miller, Evan D.
CS Cape Cod Research, Inc., E. Falmouth, MA, 02536, USA
SO Proceedings - Electrochemical Society (2000), 99-25, 593-598
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB Research is described wherein computational chemical has been used to design novel polymer electrolytes with improved ion transport rates. The rapid advances in computational horsepower have allowed for the chemical modeling of large polymeric systems. We have been using the CERIUS (Mol. Simulations, Inc., San Diego) computational chemical software to design **solid** polymer electrolytes. Single polymer chains are first constructed followed by energy minimizations, mol. dynamics, and conformational searching. By putting together multiple chains in the presence of a given **lithium salt**, at known concns., boundary conditions are then imposed to simulate an infinite system. Using mol. dynamics ion transport as a function of electrolyte structure can then be calculated
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
ST model ion transport **solid** polymer electrolyte; lithium **battery solid** polymer **electrolyte** transport
IT **Battery electrolytes**
Diffusion
Ionic conductivity
Transference number
(modeling of ion transport in **solid** polymer electrolytes)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(modeling of ion transport in **solid** polymer electrolytes)
IT 25322-68-3, Polyethylene oxide 108580-10-5 282540-13-0 282540-15-2 282540-17-4 282540-19-6 **282540-21-0**
RL: DEV (Device component use); USES (Uses)
(modeling of ion transport in **solid** polymer electrolytes)
IT **282540-21-0**
RL: DEV (Device component use); USES (Uses)
(modeling of ion transport in **solid** polymer electrolytes)
RN 282540-21-0 HCAPLUS
CN 2,4,6,8,10,12,17,20,23,26,29,32-Dodecaoxa-3,5,7,9,11,13-hexasilatritriacontane, 3,3,5,5,7,7,9,9,11,11,13-undecamethyl-13-(3-thienyloxy)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 282540-20-9
CMF C30 H68 O13 S Si6

PAGE 1-A



PAGE 1-B

— CH_2— O— CH_2— CH_2— OMe

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 28 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:54126 HCAPLUS
DN 132:110584
TI **Solid** polymer electrolyte and preparation methods
IN Sanchez, Jean-Yves; Alloin, Fannie
PA Institut National Polytechnique de Grenoble, Fr.
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000003449	A2	20000120	WO 1999-FR1680	19990709
	WO 2000003449	A3	20000413		

W: CA, JP, US
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

	FR 2781932	A1	20000204	FR 1998-9385	19980710
	FR 2781932	B1	20000901		
	CA 2302825	AA	20000120	CA 1999-2302825	19990709
	EP 1018181	A2	20000712	EP 1999-929459	19990709
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002520786	T2	20020709	JP 2000-559608	19990709
	US 6822065	B1	20041123	US 2000-508378	20000602
PRAI	FR 1998-9385	A	19980710		
	WO 1999-FR1680	W	19990709		

AB The invention concerns a **solid** polymer electrolyte which comprises ≥1 methacrylonitrile polymer in the form: of a linear homopolymer with strong mass, reinforced or not; or a homopolymer, reinforced or not, made 3-dimensional by crosslinking; or a linear copolymer with strong mass or made 3-dimensional by crosslinking, in particular by incorporation of ≥1 crosslinkable comonomer. The invention is useful in production of batteries, high-load capacitors,and electrochrome systems.

IC ICM H01M010-40
ICS C08F020-44

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST **solid** polymer **electrolyte** lithium **battery**; elec capacitor **solid** polymer electrolyte; electrochrome system **solid** polymer electrolyte

IT Primary **batteries**
Secondary **batteries**
(lithium; **solid** polymer **electrolyte** for)

IT Capacitors
(**solid** polymer electrolyte for)

IT **Electrolytes**
(**solid** polymer **electrolyte** for **batteries**, elec. capacitors, and electrochrome systems)

IT 78-67-1, Azobisisobutyronitrile 24650-42-8, Irgacure I 651
RL: CAT (Catalyst use); USES (Uses)
(catalyst in **solid** polymer electrolyte)

IT 110-26-9
RL: CAT (Catalyst use); USES (Uses)
(crosslinking agent in **solid** polymer electrolyte)

IT 255875-17-3
RL: TEM (Technical or engineered material use); USES (Uses)
(diblock and triblock; in **solid** polymer electrolyte)

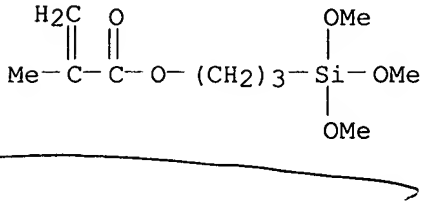
IT 126-98-7 7631-86-9, Silica, uses 25067-61-2, Polymethacrylonitrile 33825-95-5 33897-34-6, Hydroxyethyl methacrylate-methacrylonitrile copolymer 33961-16-9, Methacrylonitrile-styrene copolymer 54474-20-3, Glycidyl methacrylate-methacrylonitrile copolymer 87105-87-1 93058-88-9 154588-16-6 155620-12-5 157016-02-9 255875-12-8 255875-13-9 255875-14-0 255875-15-1 **255875-16-2** **255875-18-4** 255875-19-5 255875-20-8 255875-21-9 255875-22-0 255875-23-1
RL: TEM (Technical or engineered material use); USES (Uses)
(in **solid** polymer electrolyte)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4 **7791-03-9** **14283-07-9**, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent in **solid** polymer electrolyte)

IT **255875-16-2 255875-18-4**
RL: TEM (Technical or engineered material use); USES (Uses)
(in **solid** polymer electrolyte)
RN 255875-16-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

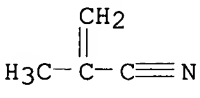
CM 1

CRN 2530-85-0
CMF C10 H20 O5 Si



CM 2

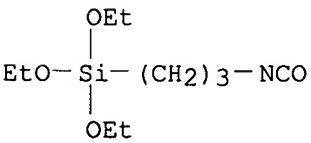
CRN 126-98-7
CMF C4 H5 N



RN 255875-18-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile and triethoxy(3-isocyanatopropyl)silane (9CI) (CA INDEX NAME)

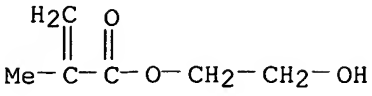
CM 1

CRN 24801-88-5
CMF C10 H21 N O4 Si



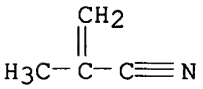
CM 2

CRN 868-77-9
CMF C6 H10 O3

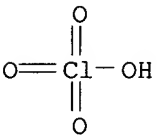


CM 3

CRN 126-98-7
CMF C4 H5 N

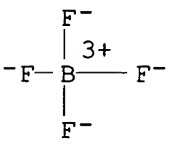


IT **7791-03-9 14283-07-9**, Lithium tetrafluoroborate
21324-40-3, Lithium hexafluorophosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent in **solid** polymer electrolyte)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



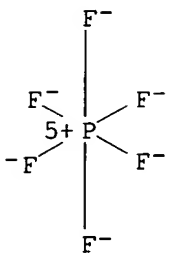
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



L38 ANSWER 29 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:49109 HCAPLUS
DN 132:110582
TI **Nonaqueous** secondary batteries
IN Tomiyama, Hideki
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 21 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000021449	A2	20000121	JP 1998-186328	19980701
PRAI	JP 1998-186328		19980701		

AB The batteries comprise a Li-containing transition metal oxide cathode, a Li-intercalating Si-containing anode, and a electrolyte gel containing (a) organic polymer, (b) non-protonic solvent, and (c) ammonium, alkali metal, or alkaline earth metal salt. The batteries have excellent charge-discharge cycle characteristics.

IC ICM H01M010-40
ICS H01M010-40; H01M004-02; H01M004-58
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **nonaq** secondary **battery** gel **electrolyte**; oxyalkylene vinyl polymer gel **electrolyte battery**
IT Gels
(**electrolyte**; lithium secondary **batteries** with polymer gel **electrolytes**)
IT **Battery electrolytes**
Polymer **electrolytes**
Secondary batteries
(lithium secondary **batteries** with polymer gel **electrolytes**)
IT Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(lithium secondary **batteries** with polymer gel **electrolytes**)

IT Polyphosphazenes
Polyphosphazenes
Polysiloxanes, uses
Polysiloxanes, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, graft, lithium complex; lithium secondary **batteries** with polymer gel **electrolytes**)

IT Polyoxyalkylenes, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(polyphosphazene-, graft, lithium complex; lithium secondary **batteries** with polymer gel **electrolytes**)

IT Polyoxyalkylenes, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(**polysiloxane**-, graft, lithium complex; lithium secondary **batteries** with polymer gel **electrolytes**)

IT 7440-02-0, Nickel, uses
RL: DEV (Device component use); USES (Uses)
(-coated silicon anode; lithium secondary **batteries** with polymer gel **electrolytes**)

IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses 193072-79-6
RL: DEV (Device component use); USES (Uses)
(anode; lithium secondary **batteries** with polymer gel **electrolytes**)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; lithium secondary **batteries** with polymer gel **electrolytes**)

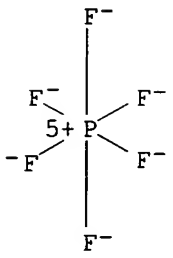
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solvent; lithium secondary **batteries** with polymer gel **electrolytes**)

IT **21324-40-3**, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(**electrolyte**; lithium secondary **batteries** with polymer gel **electrolytes**)

IT 9003-11-6, Ethylene oxide-propylene oxide copolymer 9011-17-0
24937-79-9, Poly(vinylidene fluoride) 24968-79-4, Acrylonitrile-methyl acrylate copolymer 25014-41-9, Polyacrylonitrile 25067-61-2, Polymethacrylonitrile 25322-68-3 25322-69-4 29613-70-5 50867-60-2, Acrylonitrile-methyl vinyl ether copolymer 98973-15-0 115401-75-7
255897-37-1 255897-39-3 255897-40-6 255897-42-8 **255897-44-0**
255897-45-1 255897-46-2 255897-47-3 **255897-48-4**
RL: DEV (Device component use); USES (Uses)
(lithium secondary **batteries** with polymer gel **electrolytes**)

IT **21324-40-3**, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(**electrolyte**; lithium secondary **batteries** with polymer gel **electrolytes**)

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

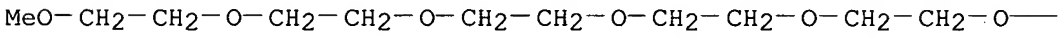
IT **255897-44-0 255897-45-1 255897-48-4**
RL: DEV (Device component use); USES (Uses)
(lithium secondary **batteries** with polymer gel **electrolytes**)

RN 255897-44-0 HCAPLUS
CN 3,6,9,12,15,18,21,24-Octaoxa-2-silapentacosane-2,2-diol, homopolymer (9CI) (CA INDEX NAME)

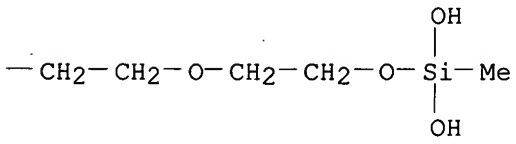
CM 1

CRN 255897-43-9
CMF C16 H36 O10 Si

PAGE 1-A



PAGE 1-B

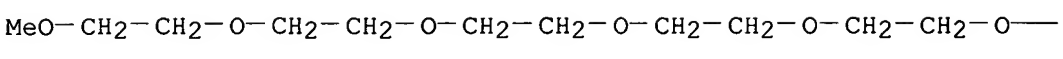


RN 255897-45-1 HCAPLUS
CN 3,6,9,12,15,18,21,24-Octaoxa-2-silapentacosane-2,2-diol, polymer with dimethylsilanediol (9CI) (CA INDEX NAME)

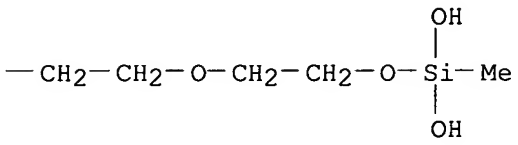
CM 1

CRN 255897-43-9
CMF C16 H36 O10 Si

PAGE 1-A

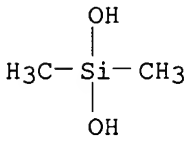


PAGE 1-B



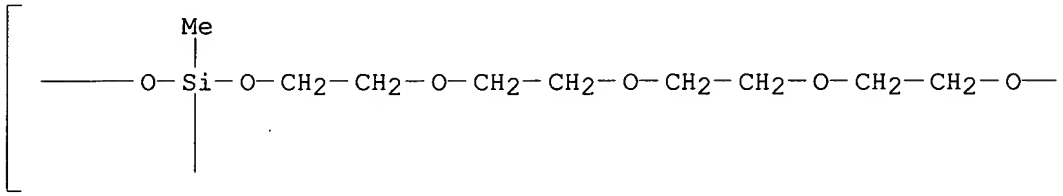
CM 2

CRN 1066-42-8
CMF C2 H8 O2 Si

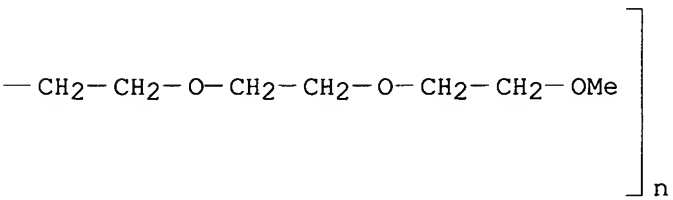


RN 255897-48-4 HCAPLUS
CN Poly[oxy(1-methyl-2,5,8,11,14,17,20,23-octaoxa-1-silatetracos-1-ylidene)] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L38 ANSWER 30 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:519056 HCAPLUS
DN 131:132329
TI Secondary **nonaqueous electrolyte batteries** and their manufacture
IN Hamamoto, Shiro; Uno, Keiichi; Inukai, Tadashi; Kurita, Tomoharu
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

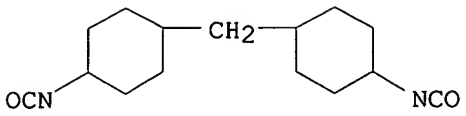
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11224671	A2	19990817	JP 1998-27359	19980209
PRAI JP 1998-27359		19980209		

AB The batteries use electrode binders containing a resin having reactive functional groups and a coupling agent containing functional groups reactive with the functional groups of the resin. The resin is preferably polyamide polyimide. The batteries are prepared by mixing and dispersing an electrode active mass and the binder in N-Me-2-pyrrolidone, γ-butyrolactone, cyclohexane, or xylene; applying the paste on metal foils, and drying to form an electrode.

IC ICM H01M004-62
ICS H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST battery electrode binder reactive polyamide polyimide
IT Battery electrodes
(binders containing resins and coupling agents having reactive functional groups for battery electrodes)
IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(binders containing resins and coupling agents having reactive functional groups for battery electrodes)
IT 2530-83-8, γ-Glycidoxypropyl **trimethoxysilane**
234448-21-6 **234449-75-3**
RL: DEV (Device component use); USES (Uses)
(binders containing resins and coupling agents having reactive functional groups for battery electrodes)
IT **234449-75-3**
RL: DEV (Device component use); USES (Uses)
(binders containing resins and coupling agents having reactive functional groups for battery electrodes)
RN 234449-75-3 HCAPLUS
CN Decanedioic acid, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,1'-methylenebis[4-isocyanatocyclohexane] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

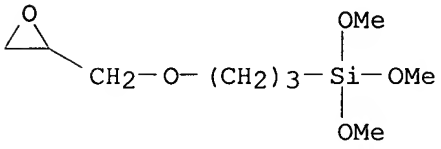
CM 1

CRN 5124-30-1
CMF C15 H22 N2 O2



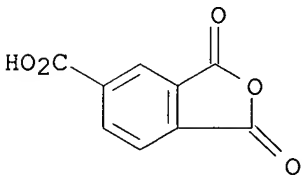
CM 2

CRN 2530-83-8
CMF C9 H20 O5 Si



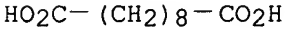
CM 3

CRN 552-30-7
CMF C9 H4 O5



CM 4

CRN 111-20-6
CMF C10 H18 O4

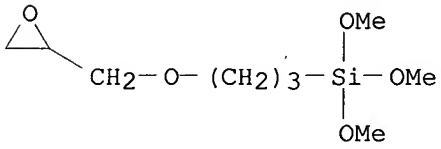


L38 ANSWER 31 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:213879 HCAPLUS
DN 130:327188
TI **Solid** hybrid polymer **electrolyte** networks: structurable materials for lithium **batteries**
AU Ulrich, R.; Zwanziger, J. W.; De Paul, S. M.; Richert, R.; Wiesner, U.; Spiess, H. W.
CS Max Planck Institute for Polymer Research, Mainz, D-55021, Germany
SO Polymeric Materials Science and Engineering (1999), 80, 610-611
CODEN: PMSEDG; ISSN: 0743-0515
PB American Chemical Society
DT Journal

LA English
AB By combining an ethylene oxide-rich organic-inorg. hybrid with PEO and a **lithium salt**, we have developed a new type of **solid** hybrid polymer network. The material has ion conductivity similar to that in pure PEO/**Li salt** mixts., but with several significant advantages. Crystallization is suppressed by the addition of the hybrid, the resulting material is rich in Lewis acid sites, and is compatible with block copolymer-driven self-assembly.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **aluminosilicate** copolymer **electrolyte** network lithium **battery**; **glycidyloxypropyltrimethoxysilane** aluminum butoxide copolymer
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(lithium complex; **solid** hybrid polymer electrolyte networks as structurable materials for lithium batteries)
IT **Battery electrolytes**
Glass transition temperature
Ionic conductivity
(**solid** hybrid polymer **electrolyte** networks as structurable materials for lithium batteries)
IT 7439-93-2D, Lithium, poly(ethylene oxide) complex, uses 25322-68-3D, Peo, lithium complex **200112-85-2**
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**solid** hybrid polymer electrolyte networks as structurable materials for lithium batteries)
IT **200112-85-2**
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**solid** hybrid polymer electrolyte networks as structurable materials for lithium batteries)
RN 200112-85-2 HCAPLUS
CN 2-Butanol, aluminum salt, polymer with trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

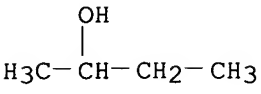
CM 1

CRN 2530-83-8
CMF C9 H20 O5 Si



CM 2

CRN 2269-22-9
CMF C4 H10 O . 1/3 Al

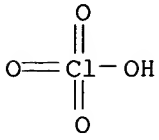


●1/3 A1

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 32 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:358251 HCAPLUS
DN 129:97638
TI ORMOCERs as inorganic-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors
AU Popall, M.; Andrei, M.; Kappel, J.; Kron, J.; Olma, K.; Olsowski, B.
CS Fraunhofer-Inst. Silicatforschung, Wurzburg, D-97082, Germany
SO Electrochimica Acta (1998), 43(10-11), 1155-1161
CODEN: ELCAAV; ISSN: 0013-4686
PB Elsevier Science Ltd.
DT Journal
LA English
AB ORMOCERs (ORganically MOdified CERamics) are inorg.-organic copolymers which are synthesized as matrix for Li-ion conduction. The inorg. oxidic backbone of these materials results from polycondensation of alkoxy compds. whereas the organic network is formed from reactive functional groups R' of **alkoxysilanes** of the type R'Si(OR)3, or by co-polymerizing reactive organic monomers with reactive functionalized **alkoxysilanes**. Depending on the reactive organic functionalities and their thermal and UV-initiated organic crosslinking reactions the materials were adapted to the needs of battery and supercapacitor manufacturing For ionic conductivity polyethers with different chain lengths and functionalized (e.g. epoxy) termination sites were synthesized and attached to organically functionalized oxidic oligomers. Conductivities of up to 10-4 Ω-1 cm-1 at room temperature were achieved without plasticizer. The electrolytes form an amorphous network with configuration temps. (according to Vogel-Tammann-Fulcher) close to -80°, several degrees below the transformation temperature (measured by DSC) in agreement with conventional configuration theory. The activation energies correlate favorably with results for good polymer electrolytes.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 57, 76
ST **battery** supercapacitor **electrolyte** organically modified ceramic
IT Polyoxyalkylenes, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(electrolyte containing; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT **Polysiloxanes**, preparation
Polysiloxanes, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(epoxy; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)

IT Secondary batteries
(lithium; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT **Battery electrolytes**
Ceramics
Electric conductivity
Hydrolysis
Ionic conductivity
(organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT Epoxy resins, preparation
Epoxy resins, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(**polysiloxane**-; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT Capacitors
(super-; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT **7791-03-9P**, Lithium perchlorate 25322-68-3P, Peo
RL: SPN (Synthetic preparation); PREP (Preparation)
(electrolyte containing; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT 12125-01-8, Ammonium fluoride
RL: CAT (Catalyst use); USES (Uses)
(organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT 1871-21-2, **Chlorotrivinylsilane** 2530-83-8, 3-**Glycidyloxypropyltrimethoxysilane**
RL: RCT (Reactant); RACT (Reactant or reagent)
(organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT **56325-93-0P**, 3-**Glycidyloxypropyltrimethoxysilane** homopolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
IT **7791-03-9P**, Lithium perchlorate
RL: SPN (Synthetic preparation); PREP (Preparation)
(electrolyte containing; organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

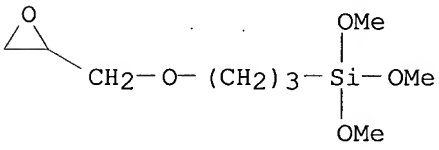


● Li

IT **56325-93-0P**, 3-**Glycidyloxypropyltrimethoxysilane** homopolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(organically modified ceramics as inorg.-organic **electrolytes** for new **solid** state lithium **batteries** and supercapacitors)
RN 56325-93-0 HCAPLUS
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

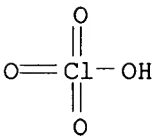
CRN 2530-83-8
CMF C9 H20 O5 Si



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 33 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:534407 HCAPLUS
DN 117:134407
TI Interface between **solid** polymer electrolyte and lithium anode
AU Takehara, Zenichiro; Ogumi, Zempachi; Uchimoto, Yoshiharu; Endo, Eishi
CS Fac. Eng., Kyoto Univ., Kyoto, 606-01, Japan
SO Proceedings - Electrochemical Society (1992), 92-15(Proc. Symp. High Power, Ambient Temp. Lithium Batteries, 1991), 179-86
CODEN: PESODO; ISSN: 0161-6374
DT Journal
LA English
AB Thin-film (<20 μm) Li/TiS2 batteries were prepared by chemical vapor deposition of the cathode. The **solid** electrolyte was formed by complexation of plasma-polymerized tris(2-methoxyethoxy)**vinyllsilane** with LiClO4. The batteries had poor discharge performance due to interfacial resistance of the Li anode and the **solid** polymer electrolyte. FTIR measurements revealed the formation of a resistive layer at the interface, consisting of a mixture of Li alkoxides and Li alkylsilanolates.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72
ST lithium anode polymer electrolyte interface; battery lithium titanium sulfide
IT **Battery electrolytes**
(lithium perchlorate-poly[tris(methoxyethoxy)**vinylsilane**] complexes, interface between lithium anode and)
IT Electric resistance
(of lithium anode and poly[tris(methoxyethoxy)**vinylsilane**]/lithium perchlorate electrolyte interface)
IT Anodes
(battery, **lithium**, interface between **lithium salt**-poly[tris(methoxyethoxy)**vinylsilane**] **electrolyte** and, in thin **battery**)
IT 7439-93-2, **Lithium**, uses
RL: USES (Uses)
(anodes, interface between **lithium salt**-poly[tris(methoxyethoxy)**vinylsilane**] **electrolyte** and, in thin **battery**)
IT **7791-03-9**, Lithium perchlorate
RL: USES (Uses)
(electrolytes containing poly[tris(methoxyethoxy)**vinylsilane**]) and, interface between lithium anode and, in thin battery)
IT 7439-93-2D, Lithium, poly[tris(2-methoxyethoxy)**vinylsilane**] complexes **59688-36-7D**, lithium complexes
RL: USES (Uses)
(electrolytes, containing perchlorate, interface between lithium anode and, in thin battery)
IT **7791-03-9**, Lithium perchlorate
RL: USES (Uses)
(electrolytes containing poly[tris(methoxyethoxy)**vinylsilane**]) and, interface between lithium anode and, in thin battery)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

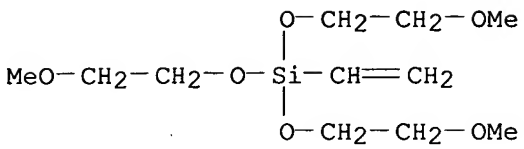


● Li

IT **59688-36-7D**, lithium complexes
RL: USES (Uses)
(electrolytes, containing perchlorate, interface between lithium anode and, in thin battery)
RN 59688-36-7 HCAPLUS
CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1067-53-4
CMF C11 H24 O6 Si



L38 ANSWER 34 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:218130 HCAPLUS
DN 116:218130
TI Polymer **solid** electrolytes
IN Kubota, Tadahiko
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04015250	A2	19920120	JP 1990-119253	19900509
PRAI	JP 1990-119253		19900509		

AB The electrolytes consist of a crosslinked polymer matrix of SiR1R2X1aO(CHR3CH2O)mX2b (I) or I and SiR4R5X1aO(CHR3CH2O)mX2b (where R1, R2 = alkyl, alkenyl, aralkyl, aryl, or crosslinkable group; R3 = H, lower alkyl, aryl; R4, R5 = alkyl, alkenyl, aryl, aralkyl; X1, X2 = alkylene; a, b = 0 or 1; m is ≥1 integer, when m is ≥2 , the R3 may be different from each other) impregnated with group Ia or IIa metal salts and aprotic solvents. Preferably, the electrolytes are in film form and processed by heating. The electrolytes have high ion conductivity and strength, and are useful for batteries, antistatic agents, and electrochem. devices.

IC ICM C08L071-02
ICS H01B001-06; H01M006-18; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST polymer **solid** electrolyte silicone polyoxyalkylene; **battery** polymer **solid electrolyte**; antistatic agent polymer **solid** electrolyte
IT Antistatic agents
(crosslinked polyoxyalkylene-silicones containing metal salts and aprotic solvents for)
IT **Battery electrolytes**
(**solid**, containing crosslinked polyoxyalkylene-silicones and metal salts and aprotic solvents, for batteries and antistatic materials)
IT 7439-93-2DP, Lithium, complexes with crosslinked polyoxyalkylene-silicones **141312-94-9DP**, lithium complexes **141312-96-1DP**, lithium complexes **141312-99-4DP**, lithium complexes 141313-00-0DP, lithium complexes 141313-02-2DP, lithium complexes 141313-04-4DP, lithium complexes 141313-05-5DP, lithium complexes
RL: PREP (Preparation)
(crosslinked, **electrolytes**, manufacture of, for **batteries** and antistatic materials)
IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate

33454-82-9, Lithium trifluoromethanesulfonate
RL: USES (Uses)
(electrolytes containing crosslinked polyoxyalkylene-silicones and, for batteries and antistatic materials)

IT 96-49-1, Ethylenecarbonate 108-32-7, Propylenecarbonate 110-71-4, 1,2-Dimethoxyethane
RL: USES (Uses)
(solvent, polymer **solid electrolytes** containing, for **batteries** and antistatic materials)

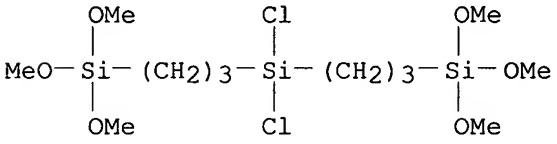
IT **141312-94-9DP**, lithium complexes **141312-96-1DP**, lithium complexes **141312-99-4DP**, lithium complexes
RL: PREP (Preparation)
(crosslinked, **electrolytes**, manufacture of, for **batteries** and antistatic materials)

RN 141312-94-9 HCAPLUS

CN 2,12-Dioxa-3,7,11-trisilatridecane, 7,7-dichloro-3,3,11,11-tetramethoxy-, polymer with dichlorodiphenylsilane and α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

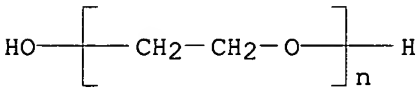
CM 1

CRN 141312-93-8
CMF C12 H30 Cl2 O6 Si3



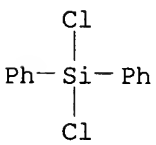
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

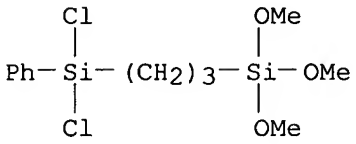
CRN 80-10-4
CMF C12 H10 Cl2 Si



RN 141312-96-1 HCAPLUS
CN Silane, dichlorodiphenyl-, polymer with [3-(dichlorophenylsilyl)propyl]tri methoxysilane and α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

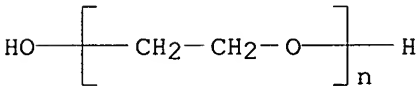
CM 1

CRN 141312-95-0
CMF C12 H20 Cl2 O3 Si2



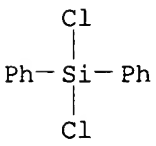
CM 2

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



CM 3

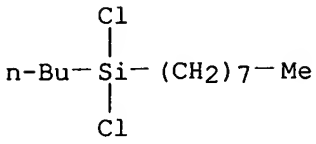
CRN 80-10-4
CMF C12 H10 Cl2 Si



RN 141312-99-4 HCAPLUS
CN 2,22-Dioxa-3,12,21-trisilatricosane, 12,12-dichloro-3,3,21,21-tetramethoxy-, polymer with butyldichlorooctylsilane and α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

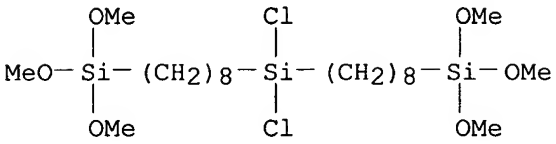
CM 1

CRN 141312-98-3
CMF C12 H26 Cl2 Si



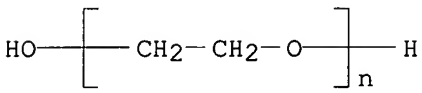
CM 2

CRN 141312-97-2
CMF C22 H50 Cl2 O6 Si3

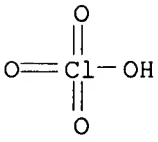


CM 3

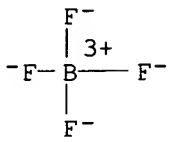
CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS



IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate
RL: USES (Uses)
(electrolytes containing crosslinked polyoxyalkylene-silicones and, for batteries and antistatic materials)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

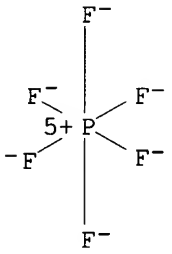


RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

L38 ANSWER 35 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:517770 HCAPLUS
DN 115:117770
TI Lithium ion-conducting polymer electrolytes
IN Akashiro, Kiyoaki; Nagai, Tatsu; Kawakami, Akira
PA Hitachi Maxell, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03084809	A2	19910410	JP 1989-221189	19890828
PRAI	JP 1989-221189		19890828		

AB The electrolytes containing **Li salts** and organic polymers which are poly(ethylene glycol) or ethylene glycol-propylene glycol copolymers with terminal unsatd. groups, which are crosslinked at the unsatd. group. Typically the polymers have unsatd. groups R[(OCH2CH2)x(OCH2CHMe)1-x]nOR [n = 2-100; x = 0.1-1.0; R = -CH:CH, -CMe:CH2, -C(:O)CH:CH2, -C(:O)CMe:CH2, or -SiMe2OSiMe2CH:CH2]. These electrolytes have high conductivity Thus, 100 g PEG was reacted with 15 g ethyl vinyl ether in Hg(OAc)2 to obtain unsatd. group-terminated PEG, mixed with 2 mg AIBN, **solidified** on Al plate at 100° for 1 h in Ar, removed from the plate, washed with Me2CO, immersed in 2% LiBF4 in Me2CO,

and dried to obtain a 0.1- mm-thick electrolyte film having conductivity 8+10-5 S/cm. A Li-Al/TiS2 battery using this film had internal resistance 160, 30 and 13 Ω at 25°, 60°, and 100°, resp.

IC ICM H01B001-12
ICS C08F299-00; H01M006-18; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76

ST lithium **battery** crosslinked polymer **electrolyte**; polyalkylene oxide modified polymer electrolyte

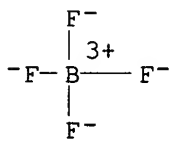
IT **Batteries**, primary
(**electrolytes** for, crosslinked modified polyoxyalkylenes/ **lithium salt**)

IT **14283-07-9**
RL: USES (Uses)
(electrolytes containing crosslinked modified polyoxyalkylenes and, for lithium batteries)

IT 7439-93-2D, Lithium, complexes with crosslinkedmodified polyoxyalkylenes 87340-85-0D, lithium complexes 135757-08-3D, lithium complexes **135757-10-7D**, lithium complexes
RL: USES (Uses)
(**electrolytes**, for lithium **batteries**)

IT **14283-07-9**
RL: USES (Uses)
(electrolytes containing crosslinked modified polyoxyalkylenes and, for lithium batteries)

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



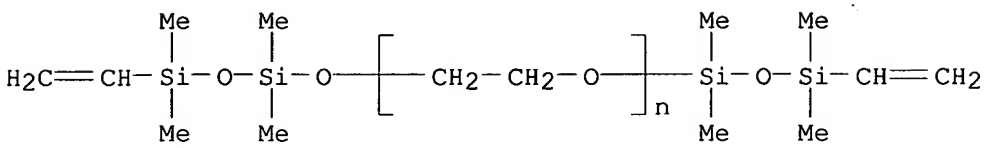
● Li^+

IT **135757-10-7D**, lithium complexes
RL: USES (Uses)
(**electrolytes**, for lithium **batteries**)

RN 135757-10-7 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(3-ethenyl-1,1,3,3-tetramethyldisiloxanyl)-ω-[(3-ethenyl-1,1,3,3-tetramethyldisiloxanyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 135757-09-4
CMF (C2 H4 O)n C12 H30 O3 Si4
CCI PMS



L38 ANSWER 36 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:453367 HCAPLUS
DN 115:53367
TI Thin film **solid**-state lithium batteries prepared by consecutive vapor-phase processes
AU Takehara, Zenichiro; Ogumi, Zempachi; Uchimoto, Yoshiharu; Endo, Eishi; Kanamori, Yoshinori
CS Fac. Eng., Kyoto Univ., Kyoto, 606, Japan
SO Journal of the Electrochemical Society (1991), 138(6), 1574-82
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
AB Thin-film **solid**-state lithium batteries of total thickness <20 μm were prepared These thin lithium batteries were fabricated using a thin film of TiS2 prepared by chemical vapor deposition as the cathode active material, a thin film of **solid** polymer prepared by plasma polymerization as the electrolyte, and a thin film of Li deposited by thermal evaporation as the anode. The **solid** polymer electrolyte film was formed by complexation of plasma-polymerized tris(2-methoxyethoxy)**vinylsilane** with LiClO4. The room temperature conductivity of the electrolyte was >10-6 S/cm (102 Ω-cm2 resistance/unit area). The discharge properties of the battery at room temperature and different c.d. were examined The effects of the interfaces between the **solid** polymer electrolyte and the electrodes on the discharge performance of the battery were studied.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium battery thin film; titanium sulfide lithium battery; **methoxyethoxyvinylsilane** polymer **electrolyte** **battery**
IT Batteries, primary
(lithium-titanium sulfide, with **solid** polymer electrolyte, vapor phase process in fabrication of)
IT Anodes
(battery, lithium, thermal evaporated, in lithium thin films **batteries** with **solid** polymer **electrolyte**)
IT Cathodes
(battery, titanium sulfide, chemical vapor deposited, in lithium thin film **batteries** with **solid** polymer **electrolyte**)
IT Interface
(electrolyte-electrolyte, lithium anode/poly(methoxyethoxy)vinyl **silane**, lithium alkoxide and lithium alkylsilanolate formation in)
IT Electric conductivity and conduction
(ionic, of poly(2-methoxyethoxy)**vinylsilane**)-lithium perchlorate complex **electrolyte** for thin-film **battery**)
IT 7439-93-2, Lithium, uses and miscellaneous

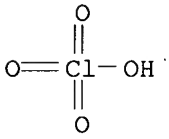
RL: USES (Uses)
(anodes, thermally evaporated, in lithium thin film **batteries** with **solid** polymer **electrolyte**)

IT 12039-13-3, Titanium disulfide 130071-55-5, Titanium sulfide (Ti1.03S2)
RL: USES (Uses)
(cathode, chemical vapor deposited, in lithium thin film **batteries** with **solid** polymer **electrolyte**)

IT **7791-03-9D**, Lithium perchlorate, complexes with poly(tris(2-methoxyethoxy)**vinylsilane**) **59688-36-7D**, complexes with lithium perchlorate
RL: USES (Uses)
(**electrolyte**, lithium-titanium sulfide thin-film **battery** with, performance of)

IT **7791-03-9D**, Lithium perchlorate, complexes with poly(tris(2-methoxyethoxy)**vinylsilane**) **59688-36-7D**, complexes with lithium perchlorate
RL: USES (Uses)
(**electrolyte**, lithium-titanium sulfide thin-film **battery** with, performance of)

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

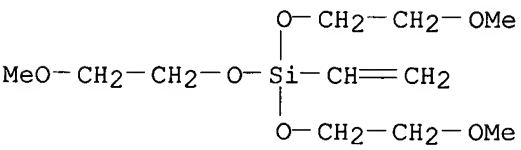


● Li

RN 59688-36-7 HCAPLUS
CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)-, homopolymer (9CI) (CA INDEX NAME)

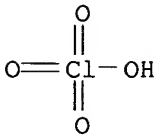
CM 1

CRN 1067-53-4
CMF C11 H24 O6 Si



L38 ANSWER 37 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:146887 HCAPLUS
DN 114:146887
TI Thin film **solid**-state lithium batteries prepared by consecutive vapor-phase processes
AU Takehara, Zenichiro; Ogumi, Zempachi; Uchimoto, Yoshiharu
CS Fac. Eng., Kyoto Univ., Kyoto, 606, Japan

SO Proceedings - Electrochemical Society (1991), 91-3(Proc. Symp. Primary Second. Lithium Batteries, 1990), 195-206
CODEN: PESODO; ISSN: 0161-6374
DT Journal
LA English
AB A thin film **solid**-state Li battery was fabricated using a thin film of TiS2 (10-15 μm) prepared by chemical vapor deposition as the cathode active material, a thin **solid** polymer as the electrolyte film (1-2 μm) prepared by plasma polymerization, and a thin film of Li deposited by thermal evaporation as the anode. The **solid** polymer electrolyte film was formed by complexation of plasma-polymerized tris(2-methoxyethoxy) **vinylsilane** with LiClO4. The polymer electrolyte had a room temperature conductivity of >10-6 S/cm. At c.d. of 10 μA/cm2, the battery showed a high discharge capacity.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 36, 38
ST lithium titanium sulfide thin film battery; **methoxyethoxyvinylsilane** polymer **electrolyte** lithium **battery**
IT Batteries, primary
(lithium-titanium sulfide thin film, with **methoxyethoxyvinylsilane** polymer electrolyte)
IT Anodes
(battery, lithium, thermal vapor deposited, for titanium sulfide **battery** with polymer **electrolyte**)
IT Cathodes
(battery, titanium disulfide, chemical vapor deposited film, for lithium **battery** with polymer **electrolyte**)
IT Electric conductivity and conduction
(ionic, of poly[tris(2-methoxyethoxy)**vinylsilane**] containing lithium perchlorate, for **battery electrolyte**)
IT 7439-93-2, Lithium, uses and miscellaneous
RL: USES (Uses)
(anodes, thermal vapor deposited, for titanium sulfide **battery** with polymer **electrolyte**)
IT 12039-13-3, Titanium disulfide
RL: USES (Uses)
(cathodes, chemical vapor deposited film, for lithium **battery** with polymer **electrolyte**)
IT **7791-03-9**, Lithium perchlorate
RL: USES (Uses)
(electrolyte containing tris(2-methoxyethoxy)**vinylsilane** polymer and, lithium-titanium sulfide battery with)
IT 7439-93-2D, Lithium, poly[tris(2-methoxyethoxy)**vinylsilane**]complexes **59688-36-7D**, Poly(tris(2-methoxyethoxy) **vinylsilane**, lithium complexes
RL: USES (Uses)
(**electrolyte**, containing perchlorate, lithium-titanium sulfide **battery** with)
IT **7791-03-9**, Lithium perchlorate
RL: USES (Uses)
(electrolyte containing tris(2-methoxyethoxy)**vinylsilane** polymer and, lithium-titanium sulfide battery with)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

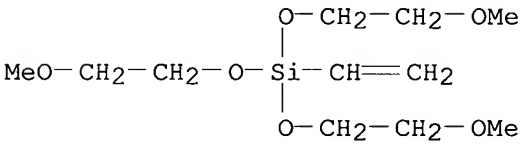


Li

IT **59688-36-7D**, Poly(tris(2-methoxyethoxy)**vinylsilane**, lithium complexes
RL: USES (Uses)
(**electrolyte**, containing perchlorate, lithium-titanium sulfide **battery** with)
RN 59688-36-7 HCAPLUS
CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1067-53-4
CMF C11 H24 O6 Si



L38 ANSWER 38 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1990:39729 HCAPLUS
DN 112:39729
TI Preparation of ultra-thin **solid**-state lithium batteries utilizing a plasma-polymerized **solid** polymer electrolyte
AU Ogumi, Zempachi; Uchimoto, Yoshiharu; Takehara, Zenichiro; Kanamori, Yoshinori
CS Fac. Eng., Kyoto Univ., Kyoto, 606, Japan
SO Journal of the Chemical Society, Chemical Communications (1989), (21), 1673-4
CODEN: JCCCAT; ISSN: 0022-4936
DT Journal
LA English
AB Ultra-thin **solid**-state Li batteries were fabricated using a thin polymer electrolyte film prepared by hybridization of the plasma polymer formed from tris(2-methoxyethoxy)**vinylsilane** and LiClO4, with a TiS2 cathode and Li film anode. The polymer was prepared on TiS2 film; a polymer layer was sprayed with LiClO4-MeOH, then a second polymer layer was formed and the composite was kept at 80° for 24 h under 10-3 torr to promote uniform distribution of LiClO4 in the polymer. The batteries had good discharge performance at c.d. of 10 μA/cm2; the internal resistance was fairly high, due to formation of a resistive layer at the Li-electrolyte interface.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy

Technology)
Section cross-reference(s): 38

ST lithium **battery polymethoxyethoxyvinylsilane electrolyte**; electrolyte lithium perchlorate **polyoxyvinylsilane**; titanium sulfide lithium polymer battery; conducting polymer **polyoxyvinylsilane electrolyte battery**

IT Batteries, secondary
(lithium-titanium sulfide, with **polyoxyvinylsilane**-lithium perchlorate electrolyte, fabrication of)

IT Electric conductivity and conduction
(of **polyoxyvinylsilane**-lithium perchlorate **electrolyte**, for lithium-titanium sulfide **batteries**)

IT 12039-13-3, Titanium sulfide (TiS2)
RL: USES (Uses)
(cathodes, chemical vapor-deposited, **methoxyethoxyvinylsilane** plasma polymerization on, lithium battery fabrication by)

IT **59688-36-7**
RL: USES (Uses)
(electrolytes of lithium perchlorate and plasma-formed, lithium-titanium sulfide battery fabricated with)

IT **7791-03-9**, Lithium perchlorate (LiClO4)
RL: USES (Uses)
(electrolytes of **polyoxyvinylsilane** and, lithium-titanium sulfide battery fabricated with)

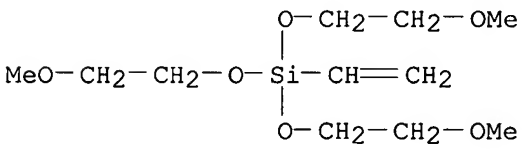
IT **59688-36-7**
RL: USES (Uses)
(electrolytes of lithium perchlorate and plasma-formed, lithium-titanium sulfide battery fabricated with)

RN 59688-36-7 HCAPLUS

CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

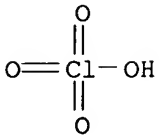
CRN 1067-53-4
CMF C11 H24 O6 Si



IT **7791-03-9**, Lithium perchlorate (LiClO4)
RL: USES (Uses)
(electrolytes of **polyoxyvinylsilane** and, lithium-titanium sulfide battery fabricated with)

RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



L38 ANSWER 39 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:593764 HCAPLUS
DN 109:193764
TI **Solid** polymer electrolyte **composition**
IN Yasukawa, Eiki; Kihara, Kunio; Tsuboi, Mayumi
PA Mitsubishi Petrochemical Co., Ltd., Japan
SO Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 269018	A2	19880601	EP 1987-117152	19871120
	EP 269018	A3	19890524		
	EP 269018	B1	19920701		
	R: DE, FR, GB, NL				
	JP 63130612	A2	19880602	JP 1986-278340	19861121
	JP 63130613	A2	19880602	JP 1986-278341	19861121
	JP 63142061	A2	19880614	JP 1986-289641	19861204
	US 4798773	A	19890117	US 1987-122918	19871119
PRAI	JP 1986-278340	A	19861121		
	JP 1986-278341	A	19861121		
	JP 1986-289641	A	19861204		

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Vinyl- and Si-containing monomers I, II, III, and IV (where R = H or Me; X = O[CH2C(Rb)HO]b with Rb = H or Me and b = 2-60; X1 and X2 = O[CH2C(Rc)HO]cR' with Rc = H or Me, R' = C1-20 alkyl group, and c = 2-60; Y = [CH2C(Ra)HO]a with Ra = H or Me and a ≤60; and Z = H, C1-20 alkyl group, C6-20 aryl group, CH2C(R)COOYSi(X1)(X2), or [CH2C(R)COOYSi(X1)(X2)X3CH2]2CH with X3 = O(CH2C(Rk)HO)k having Rk = H or Me and k ≤60; and n = 1, 2, or 3) is polymerized to form a matrix for a **solid** polymer electrolyte containing an **electrolyte** salt suitable for use in **batteries** and electrochromic display elements. Thus, 0.4 SiCl4 and 0.1 mol 2-hydroxyethyl methacrylate were reacted in MePh at 20°, cooled to 5°, excess SiCl4 was removed at 5 torr, the residue was reacted with 0.36 mol ethylene glycol monomethyl ether of average mol. weight 350 in the presence of pyridine, pyridine hydrochloride was removed, the residue was poured into C6H14 to sep. I (V,

R = Me, X = X1 = O(CH2CH2O)mMe, X = OCH2CH2O, Y = CH2CH2O, Z = Me, n = 1, and m ≈8). A mixture of V 1.4, polyethylene glycol dimethacrylate 0.4, LiClO4 0.2, and benzoyl peroxide 0.018 g dissolved in 0.5 mL Me2CO was cast into a glass vessel, the solvent was removed, and the mixture was allowed to to polymerize for 20 h to obtain a 0.28-mm-thick **solid** electrolyte having an alkylene oxide group/salt equivalent ratio of 17.6, an ion conductivity of 5.7 + 10-5 S/cm, and a glass transition temperature of -66°.

IC ICM H01M006-18
ICS H01B001-12; C08F030-08

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 74

ST lithium perchlorate polymer **solid** electrolyte

IT **Batteries**, primary
Batteries, secondary
(**electrolytes** for, **lithium salts** and silicon-containing polyoxyalkylene copolymer)

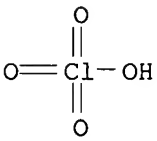
IT Optical imaging devices
(electrochromic, electrolytes for, **lithium salts** and silicon-containing polyoxyalkylene copolymer)

IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate 33454-82-9
RL: USES (Uses)
(**solid** electrolytes containing, silicon-containing polyoxyalkylene copolymers, for batteries and electrochromic display elements)

IT **115900-71-5 115900-73-7 115922-12-8 115922-14-0 115922-16-2 115945-24-9 115979-59-4 116478-12-7**
RL: USES (Uses)
(**solid electrolytes**, containing **lithium salts**, for **batteries** and electrochromic display elements)

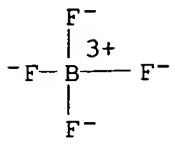
IT **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate
RL: USES (Uses)
(**solid** electrolytes containing, silicon-containing polyoxyalkylene copolymers, for batteries and electrochromic display elements)

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



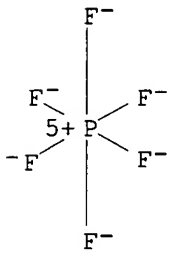
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

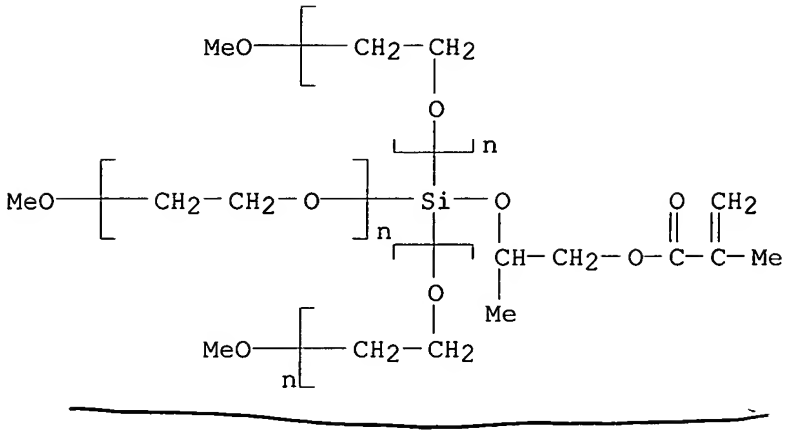


● Li^+

IT **115900-71-5 115900-73-7 115922-12-8**
115922-14-0 115922-16-2 115945-24-9
115979-59-4 116478-12-7
RL: USES (Uses)
(**solid electrolytes**, containing **lithium salts**, for **batteries** and electrochromic display elements)
RN 115900-71-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[1-methyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylidyne]tris[ω-methoxy-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

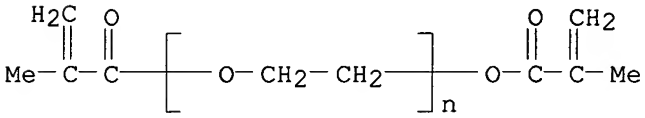
CM 1

CRN 115900-70-4
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C10 H20 O6 Si
CCI PMS



CM 2

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS



RN 115900-73-7 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-1,2,3-propanetriyltris[ω-hydroxy-, ether with α,α'-[hydroxy[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylene]bis[ω-methoxypoly(oxy-1,2-ethanediyl)] (1:3), polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

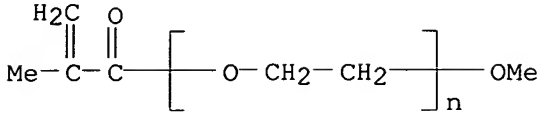
CM 1

CRN 115900-72-6
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C27 H50 O18 Si3
CCI PMS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

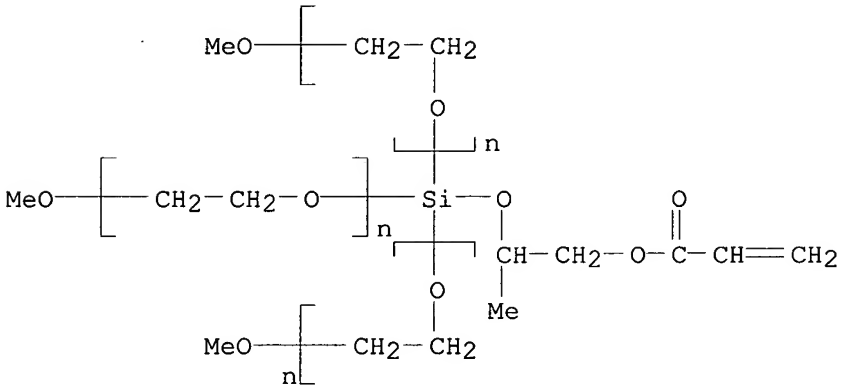
CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



RN 115922-12-8 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[1-methyl-2-[(1-oxo-2-propenyl)oxy]ethoxy]silylidyne]tris[ω-methoxy-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

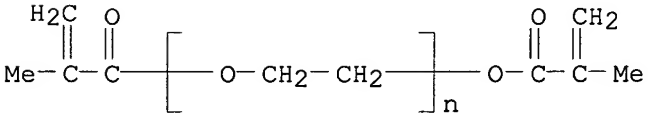
CM 1

CRN 115922-11-7
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C9 H18 O6 Si
CCI PMS



CM 2

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS

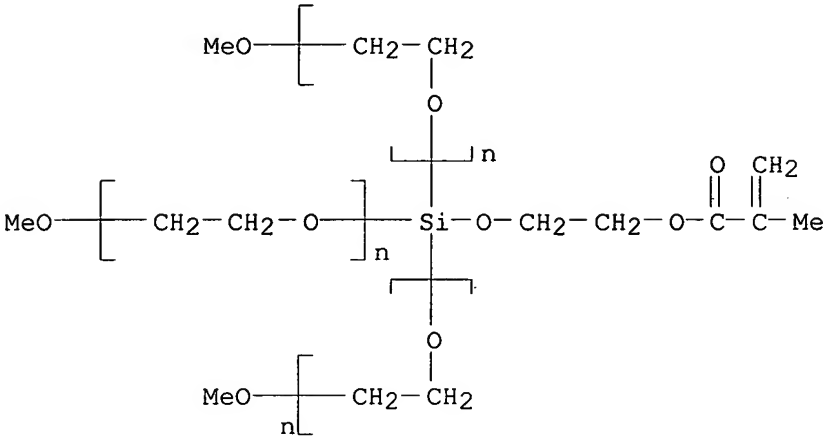


RN 115922-14-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylidyne]tris[ω-methoxy-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

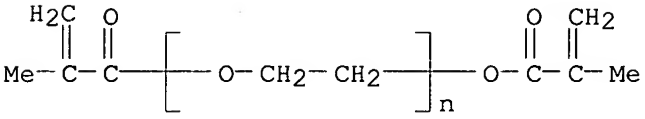
CRN 115922-13-9

CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C9 H18 O6 Si
CCI PMS



CM 2

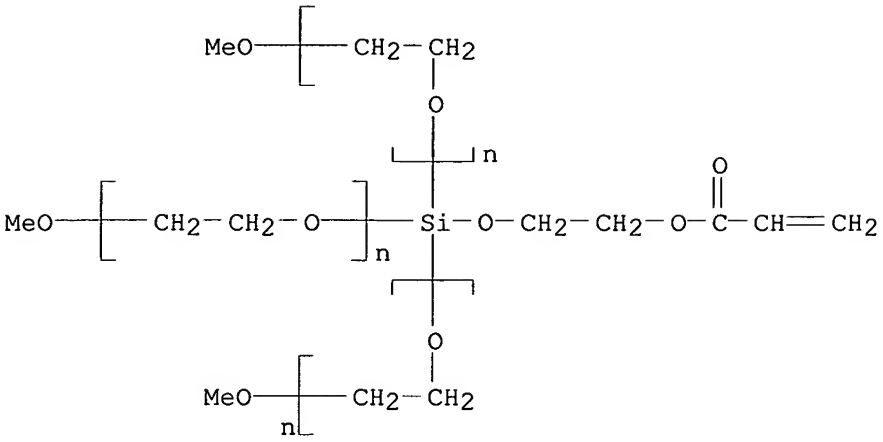
CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS



RN 115922-16-2 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[2-[(1-oxo-2-propenyl)oxy]ethoxy]silylidyne]tris[ω-methoxy-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

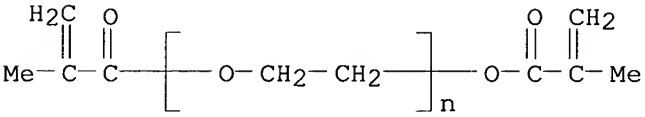
CM 1

CRN 115922-15-1
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C8 H16 O6 Si
CCI PMS



CM 2

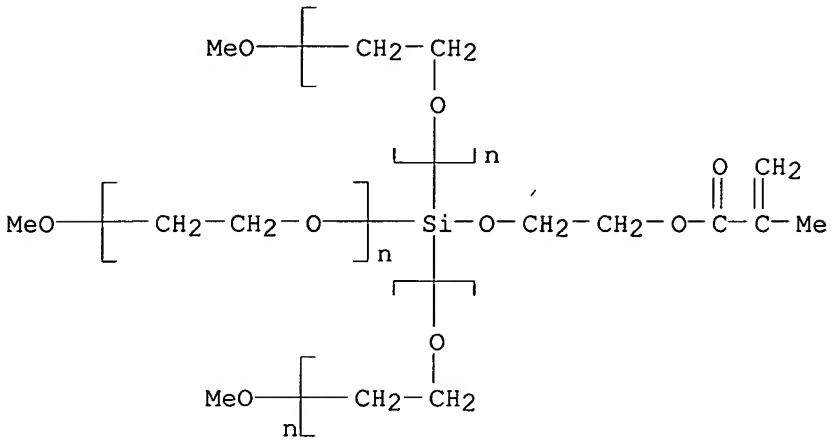
CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS



RN 115945-24-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylidyne]tris[ω-methoxy-, polymer with α,α',α''-1,2,3-propanetriyltris-ω-hydroxypoly(oxy-1,2-ethanediyl)] ether with α,α'-[hydroxy[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylene]bis[ω-methoxypoly(oxy-1,2-ethanediyl)] (1:3) (9CI) (CA INDEX NAME)

CM 1

CRN 115922-13-9
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C9 H18 O6 Si
CCI PMS



CM 2

CRN 115900-72-6
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C27 H50 O18 Si3
CCI PMS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 115979-59-4 HCAPLUS
CN Poly[oxy(methyl-1,2-ethanediyl)], α-(2-methyl-1-oxo-2-propenyl)-ω-methoxy-, polymer with α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) ether with α,α'-[hydroxy[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylene]bis[ω-methoxypoly(oxy-1,2-ethanediyl)] (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 115979-58-3
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C16 H30 O11 Si2
CCI PMS

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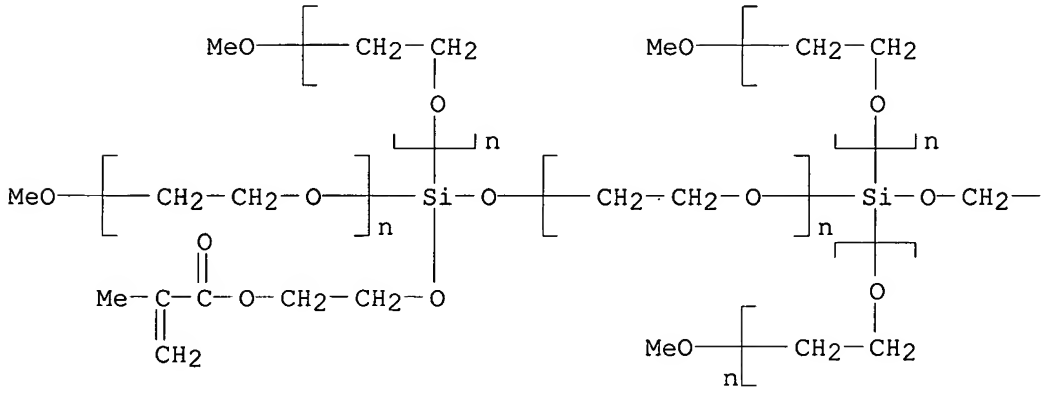

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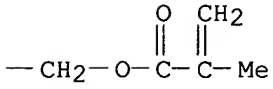
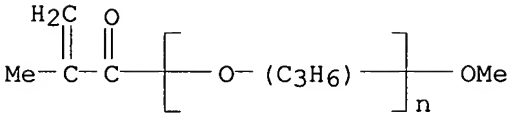


CM 2

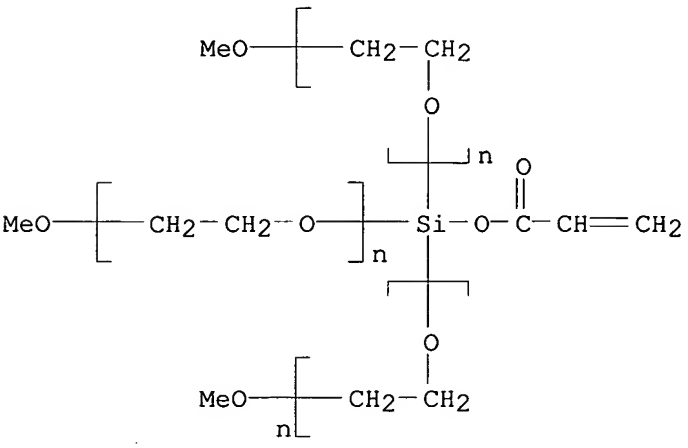
CRN 65932-26-5
CMF (C3 H6 O)n C5 H8 O2
CCI IDS, PMS



RN 116478-12-7 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α',α''-[[(1-oxo-2-propenyl)oxy]silylidyne]tris[ω-methoxy-, polymer with α,α',α''-1,2,3-propanetriyltris[ω-hydroxypoly(oxy-1,2-ethanediyl)] ether with α,α'-[hydroxy[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethoxy]silylene]bis[ω-methoxypoly(oxy-1,2-ethanediyl)] (3:1) (9CI) (CA INDEX NAME)

CM 1

CRN 116478-11-6
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C6 H12 O5 Si
CCI PMS



CM 2

CRN 115900-72-6
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C27 H50 O18 Si3
CCI PMS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

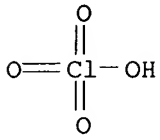
L38 ANSWER 40 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:215227 HCAPLUS
DN 104:215227
TI **Nonaqueous** bateries
IN Oi, Masashi; Suzuki, Tetsuo
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 60216461	A2	19851029	JP 1984-70425	19840409
PRAI JP 1984-70425		19840409		

AB **Nonaq. batteries** use an **electrolyte** containing alkali metal and alkaline earth ions and a **dimethylsiloxane** -poly(ethylene oxide) copolymer with repeating unit of Me2SiO(CH2CH2O)p (p ≥ 1). The batteries can be used at higher temps. Thus, 54.09 Me2SiCl2 and 26.01 g ethylene glycol were polymerized by dehydrochlorination in C6H6 to obtain a copolymer with p = 1; 5 weight% LiClO4 was dispersed in the copolymer and C6H6 was then evaporated in vacuum. The conductivity of the product was 1.3 + 10-4 S/cm. The obtained electrolyte was combined with a cathode containing MnO2, acetylene black, and Teflon powder; a Li-sheet anode and a polypropylene separator were used to prepare a button-type battery, which showed good performance, especially at higher temperature (≤100°) because of increased electrolyte conductivity and was stable when stored at higher temps.

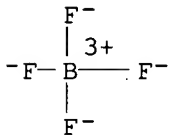
IC ICM H01M006-16
CC 72-3 (**Electrochemistry**)
Section cross-reference(s): 38, 52, 76
ST **battery** lithium **nonaq** polymer **electrolyte**; **dimethyldichlorosilane** ethylene glycol copolymer electrolyte; lithium perchlorate polymer **battery electrolyte**
IT Electric conductivity and conduction
(of **lithium salt**-containing **dichlorodimethylsilane**-polyethylene glycol copolymers, for button-type batteries)
IT Batteries, primary
(button-type, lithium-manganese dioxide, with lithium perchlorate-containing **siloxane**-glycol copolymer electrolyte)
IT **7791-03-9**
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-ethylene glycol copolymer, for button-type batteries)
IT 556-65-0 **14283-07-9** 33454-82-9
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-tetraethylene

glycol copolymer, for button-type batteries)
IT 25233-16-3 **25301-23-9** 59911-84-1 **96141-31-0**
96161-61-4 102188-13-6 **102244-02-0**
RL: PRP (Properties)
(electrolyte, containing lithium perchlorate, for button-type batteries)
IT **7791-03-9**
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-ethylene glycol copolymer, for button-type batteries)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



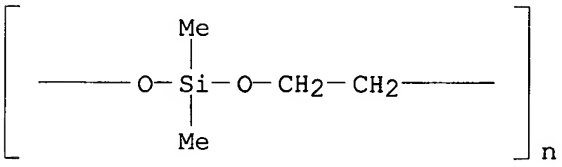
● Li

IT **14283-07-9**
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-tetraethylene glycol copolymer, for button-type batteries)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

IT **25301-23-9 96141-31-0 102244-02-0**
RL: PRP (Properties)
(electrolyte, containing lithium perchlorate, for button-type batteries)
RN 25301-23-9 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)



RN 96141-31-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

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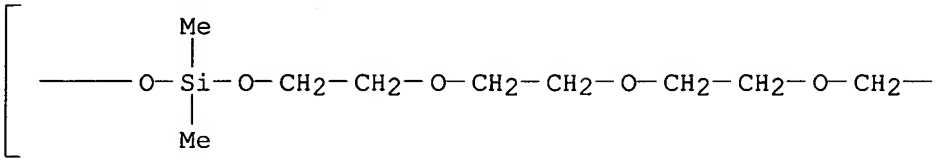

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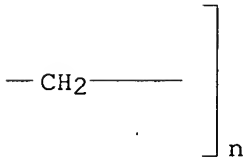
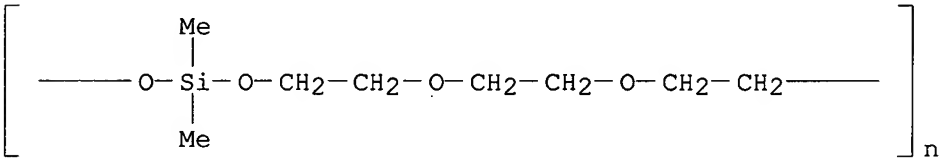


RN 102244-02-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)



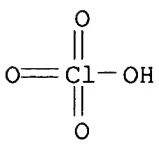
L38 ANSWER 41 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:215226 HCAPLUS
DN 104:215226
TI **Nonaqueous** batteries
IN Suzuki, Tetsuo; Oi, Masashi; Shinohara, Isao; Tsuchida, Hidetoshi
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60216462	A2	19851029	JP 1984-72121	19840411
PRAI	JP 1984-72121		19840411		

AB **Nonaq. batteries** use **electrolyte** containing alkali metal and alkaline earth metal ions and a **dimethylsiloxane**-poly(ethylene oxide) copolymer with repeating unit Me2SiO(CH2CH2O)p (p ≥1). The batteries can be used at higher temperature Thus, 54.09 g

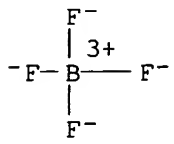
Me2SiCl2 and 26.01 g ethylene glycol were polymerized by dehydrochlorination in C6H6 to obtain a copolymer (p = 1); 5 weight% LiCLO4 was dispersed in the copolymer and C6H6 was evaporated in vacuum. The conductivity of the product was 1.3
+ 10-4 S/cm. The obtained electrolyte was combined with a cathode containing MnO2, acetylene black, and Teflon powder; a Li-sheet anode and a polypropylene separator was used to obtain a button-type battery, which showed good performance, especially at higher temperature (≤100°) because of increased electrolyte conductivity and was stable when stored at higher temps.

IC ICM H01M006-16
CC 72-3 (**Electrochemistry**)
Section cross-reference(s): 38, 52, 76
ST **battery** lithium **nonaq** polymer **electrolyte**; **dichlorodimethylsilane** ethylene glycol copolymer electrolyte; lithium perchlorate polymer **battery electrolyte**
IT Electric conductivity and conduction
(of alkali metal salt-containing **dichlorodimethylsilane**-ethylene glycol copolymer **electrolytes**, for button-type **batteries**)
IT Batteries, primary
(button-type, lithium-manganese dioxide, with lithium perchlorate-containing copolymer electrolyte)
IT 302-04-5, uses and miscellaneous 333-20-0 540-72-7 2923-17-3 **7791-03-9** 13755-29-8 **14283-07-9**
RL: USES (Uses)
(electrolyte containing, **dichlorodimethylsilane**-ethylene glycol copolymer, for button-type batteries)
IT 33454-82-9
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-ethylene glycol copolymer, for button-type batteries)
IT 25233-16-3 **25301-23-9** 59911-84-1 **96141-31-0** 96161-61-4 102188-13-6 **102244-02-0**
RL: PRP (Properties)
(electrolyte, containing **lithium salts**, for button-type batteries)
IT **7791-03-9 14283-07-9**
RL: USES (Uses)
(electrolyte containing, **dichlorodimethylsilane**-ethylene glycol copolymer, for button-type batteries)
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



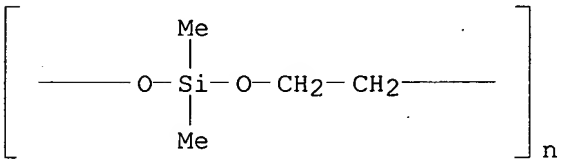
● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



IT **25301-23-9 96141-31-0 102244-02-0**
RL: PRP (Properties)
(electrolyte, containing **lithium salts**, for button-type batteries)

RN 25301-23-9 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)



RN 96141-31-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

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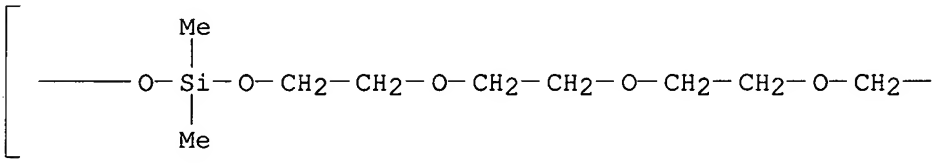

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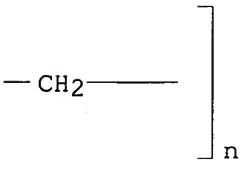
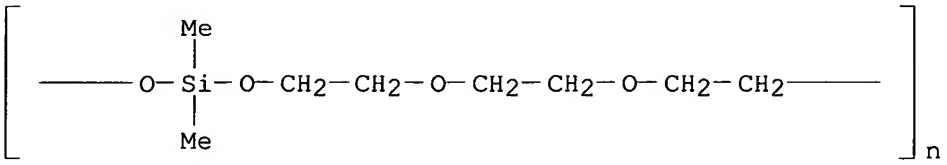


RN 102244-02-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)



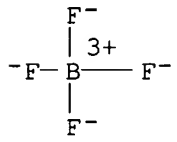
L38 ANSWER 42 OF 42 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:215225 HCAPLUS
DN 104:215225
TI **Nonaqueous** batteries
IN Oi, Masashi; Suzuki, Tetsuo
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60216463	A2	19851029	JP 1984-70426	19840409
PRAI	JP 1984-70426		19840409		

AB **Nonaq. batteries** use an **electrolyte** containing alkali metal and alkaline earth metal ions and a crosslinked **dimethylsiloxane**-poly(ethylene oxide) copolymer with repeating unit Me2SiO(CH2CH2O)p (p >1). The batteries can be used at higher temps. Thus, 65.1 g Me2SiCl2 and 55.6 g tetraethylene glycol were polymerized by dehydrochlorination in C6H6; 1 g of the copolymer was mixed with 0.15 g triethylene glycol dimethacrylate and 0.12 g Bz2O, and the mixture was treated at 120° for 2 h on a Teflon plate to obtain a 60-μ thick white membrane. After removal of impurities with acetone, the membrane was swelled with LiClO4 solution in acetone. Removal of acetone gave a membrane containing 13% LiClO4 with a conductivity of 3.2 + 10-5 S/cm. The cathode was prepared by mixing an ion-conductive **solid** electrolyte containing poly(vinylidene fluoride), LiClO4, and propylene carbonate with MnO2 and C powder in a 4:15:1 ratio, and pressing. The anode was a Li sheet. A button-type battery using these materials showed excellent performance after storage at 60° for 20 days.

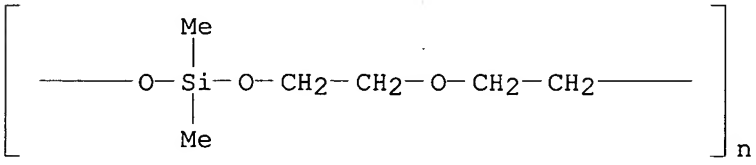
IC ICM H01M006-18
CC 72-3 (**Electrochemistry**)
Section cross-reference(s): 38, 52, 76
ST **battery** lithium **nonaq** polymer **electrolyte**; **dichlorodimethylsilane** tetraethylene glycol copolymer electrolyte; lithium perchlorate polymer **battery electrolyte**
IT Electric conductivity and conduction
(of lithium perchlorate-containing **dichlorodimethylsilane**-tetraethylene glycol copolymer **electrolyte**, for button-type **batteries**)
IT Batteries, primary
(button-type, lithium-manganese dioxide, with lithium perchlorate-containing copolymer electrolyte)
IT 109-16-0
RL: PRP (Properties)
(electrolyte containing **lithium salts** and, **dichlorodimethylsilane**-tetraethylene glycol copolymer, for button-type batteries)

IT 540-72-7 556-65-0 **14283-07-9**
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-tetraethylene glycol copolymer, for button-type batteries)
IT 26355-30-6 **26499-73-0 96141-31-0** 96161-61-4
RL: PRP (Properties)
(electrolyte, containing **lithium salts**, for button-type batteries)
IT **14283-07-9**
RL: PRP (Properties)
(electrolyte containing, **dichlorodimethylsilane**-tetraethylene glycol copolymer, for button-type batteries)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

IT **26499-73-0 96141-31-0**
RL: PRP (Properties)
(electrolyte, containing **lithium salts**, for button-type batteries)
RN 26499-73-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)



RN 96141-31-0 HCAPLUS
CN Poly[oxy(dimethylsilylene)oxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

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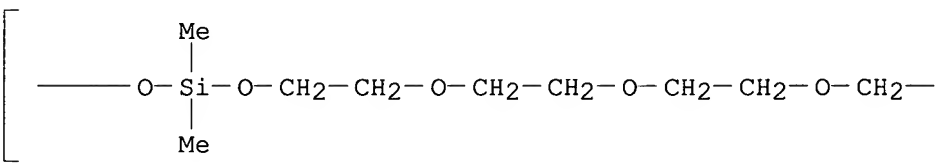

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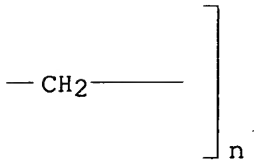

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